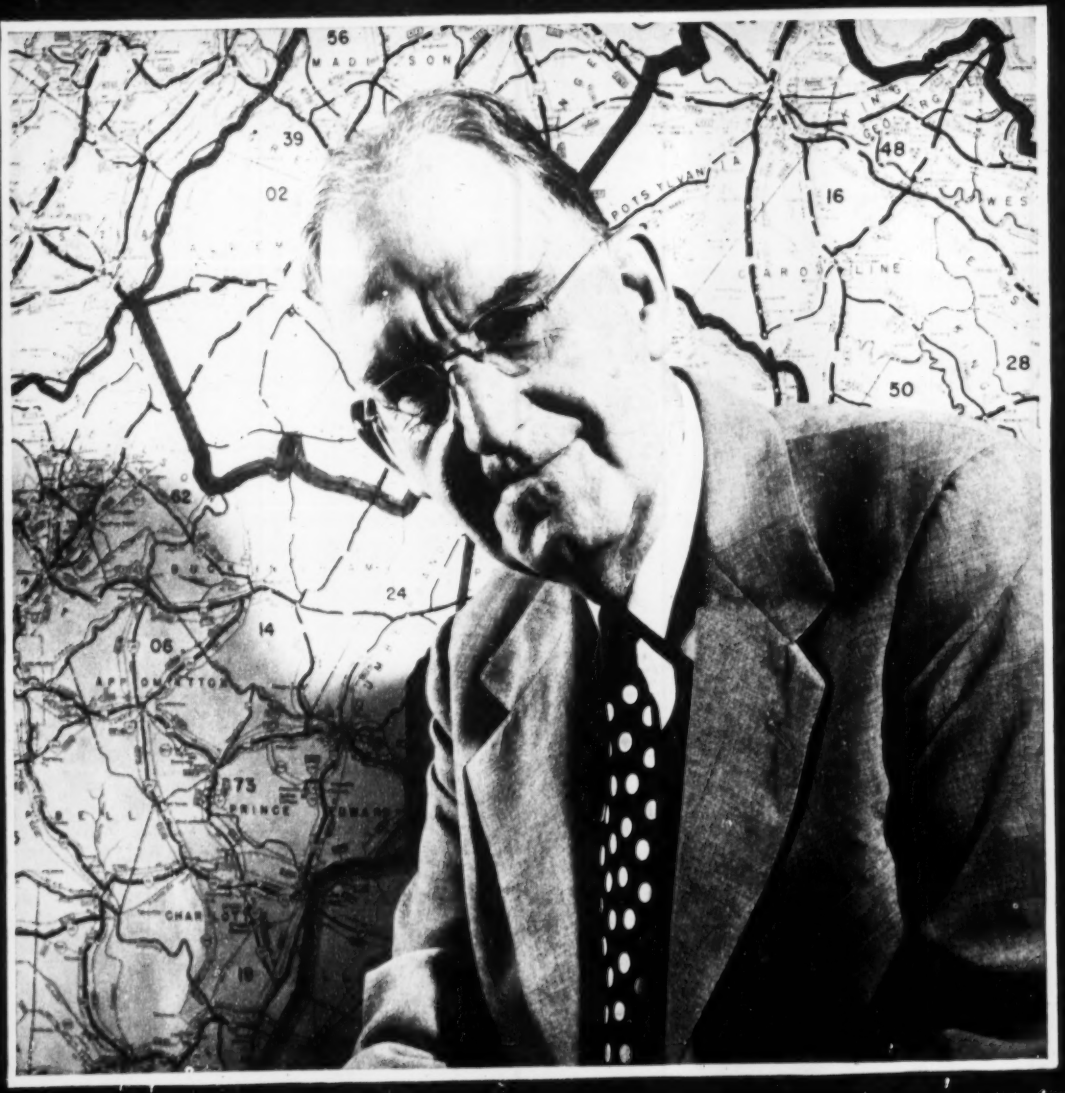
ENGINEERING NEWS-RECORD



E B POWER GS N
UNIVERSITY MICROFILMS IN
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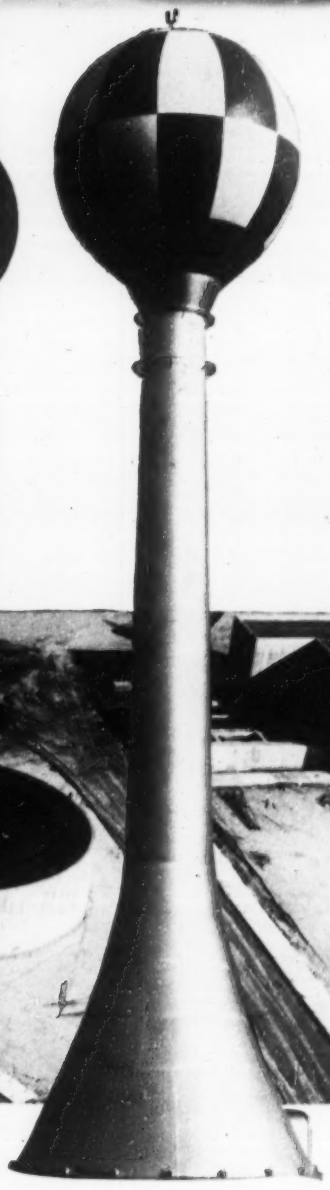
ANN ARBOR MICH

A McGRAW HILL PUBLICATION

CB&I BUILDS WATERSPHERE and FLOATING COVERS

for Sacramento Disposal Plant

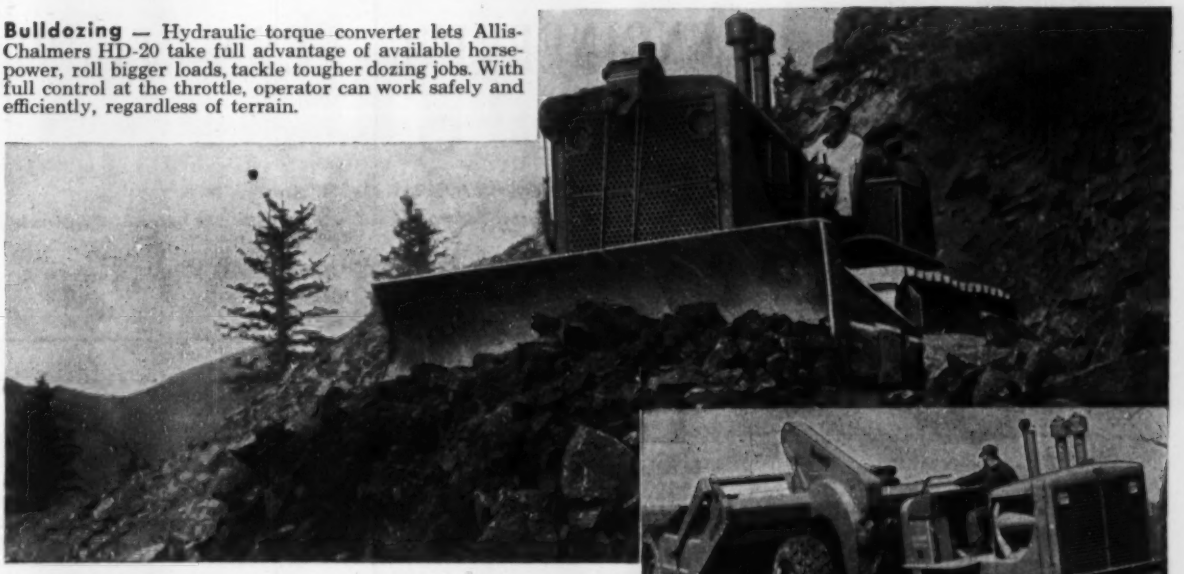


Shown in the view above is a 50,000-gal. Horton Watersphere® and five 100-ft. diameter digestion tanks with steel floating covers which were recently installed at the City of Sacramento's new sewage disposal plant. The floating covers and Watersphere were fabricated at Chicago Bridge & Iron Company's Salt Lake City Plant and erected on the job by skilled CB&I crews.

The floating covers were installed as an aid to the production and recovery of sludge gas which will, in turn, be used to heat the sludge and for building heat. The Watersphere was installed to provide a dependable, gravity pressure water supply for water sprays, wash water and other needs within the plant.

Chicago Bridge & Iron Company also builds Hortonspheres, elevated water tanks, standpipes and reservoirs for municipal service. Write our nearest office for complete information, estimates or quotations. There is no obligation on your part.

CHICAGO BRIDGE & IRON COMPANY



Bulldozing — Hydraulic torque converter lets Allis-Chalmers HD-20 take full advantage of available horsepower, roll bigger loads, tackle tougher dozing jobs. With full control at the throttle, operator can work safely and efficiently, regardless of terrain.

AN ALLIS-CHALMERS REPORT

How hydraulic torque converter drive improves big tractor performance—increases job output

Allis-Chalmers offers the only crawler tractors that are capable of exerting maximum drawbar pull *at all times* . . . under all load and terrain conditions . . . without gear-shift guesswork.

Whatever the job, the operator need merely make contact with the load and then open the throttle. As the load requirements change, the hydraulic torque converter *automatically* matches the conditions with exactly the right combination of speed and pull.

This eliminates most shifting . . . leads to far more work done in a continuous work cycle . . . far longer equipment life.

• • •

Hydraulic torque converter drive is just one of many reasons why the Allis-Chalmers HD-20 and HD-15 assure you higher output, less upkeep.

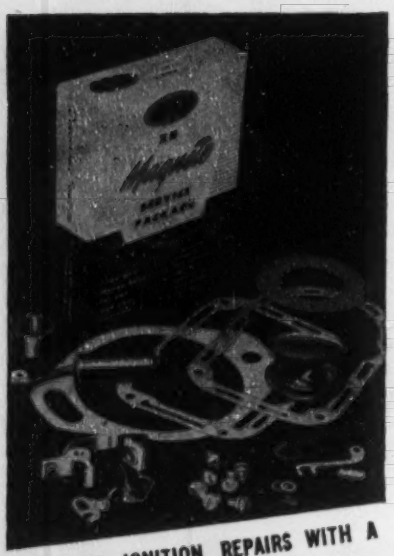
HD-20 — WEIGHT — 41,000 LB • 175 NET HP AT FLYWHEEL
HD-15 — WEIGHT — 28,000 LB • 135 NET HP AT FLYWHEEL

Pulling — Hydraulic torque converter drive actually multiplies torque up to four and one-half times . . . develops tremendous drawbar pull to start the load smoothly . . . and automatically accelerates to the highest speed that conditions permit, in either high or low range.

Pushing — Operator just makes contact, then opens the throttle and relaxes. The HD-20 automatically matches speed to that of pushed equipment, maintains steady contact while loading, sends load off to the fill at higher speed.

Digging and Loading — With the HD-20G, the operator crowds surely and steadily, using only throttle and bucket levers. With full horsepower always available even at creeping speed, he can work effectively in mud, on hillsides or edges of banks.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.



SPEED UP IGNITION REPAIRS WITH A WICO magneto overhaul PACKAGE

The essential parts for a thorough, long-lasting magneto overhaul are contained in Wico's new XH magneto overhaul package. When you use the complete package, you get a thorough magneto overhaul. All the necessary, factory-made parts for each repair are right at hand—in one package, under one number, at one price. Besides insuring better repairs, the package saves time spent looking for parts, looking up part numbers, figuring out prices. Time saved this way means your engine is back on the job fast, repair costs are lower, profits are up.

CONSTRUCTION EQUIPMENT ignition repairs last longer when a Wico XH magneto overhaul package is used. Package contains all necessary XH magneto parts for thorough, long-lasting repairs: condenser and contact set, gaskets, screws, breaker arm lock, oil seal, slinger, bushing.
ORDER PKG. NO. K-9358.

WICO

WICO ELECTRIC

Box 910 West Springfield, Mass.

Gentlemen:
I can use XH Magneto Overhaul Package No. K9358. Rush me name of distributor nearest me.

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ADDRESS .....

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Robert F. Boger

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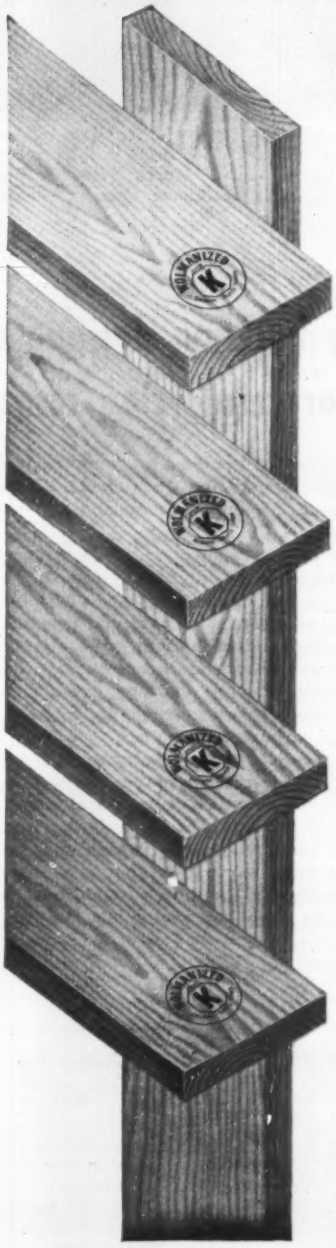
is your assurance



. . . Because only Wolmanized clean pressure-treated lumber gives you all four of these important advantages:

1 uniform treatment

Basic *Wolman salts are produced under a single exacting standard of control. And the pressure-treatment process by which Wolmanized lumber is made is the same throughout all 14 sources operating 24 pressure-treatment plants. Wherever you buy Wolmanized lumber, you can be certain of uniform undeviating standards of treatment.

2 application versatility

No matter what use you may have for treated lumber, Wolmanized lumber will serve your purposes . . . and serve them better. Deadly to rot and termites, Wolmanized lumber is clean, odorless, completely paintable, harmless to clothing and skin, and noncorrosive to metal fittings.

3 available anywhere

It is easy to specify Wolmanized lumber by name. And delivery is assured, since Wolmanized lumber is produced coast-to-coast and in Canada by 24 recognized and dependable wood-preserving plants. You are assured, too, by the fact that 47% of all clean pressure-treated lumber is Wolmanized lumber . . . nearly as much as the total output of all other sources combined. You are assured of a nationally recognized and accepted product with Wolmanized lumber.

4 proved dependability

Actual service records prove that Wolmanized pressure-treated lumber lasts years longer. Even under the most demanding conditions . . . such as "Wet Process" industries . . . Wolmanized lumber gives many times the service of untreated lumber, or lumber that has merely been dipped in preservative.

Koppers Company, Inc., Wolman Preservative Department, Pittsburgh 19, Pennsylvania.

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Pressure-Treated

Wolmanized

LUMBER

$5-million Bigelow Apartments, at the top of Pittsburgh's famed Golden Triangle tower 20 stories, contain 465 units all air conditioned. Steeltex Floor Lath provides reinforcement for all floors. Arthur E. Tennyson, Architect. Martin C. Knabe, Structural Engineer. Behrman & Passel, Contractors.

$13-million low rent public housing project, St. Clair Village, 79 buildings, 723 units in 3-story buildings, 366 units in 2-story row houses. Concrete floors poured over Steeltex. Marks, Fisher & Simboli, Architects. George Levinson, Design Engineer. Ragnar Benson, Inc., Contractors.

Why building designers in for reinforcing concrete

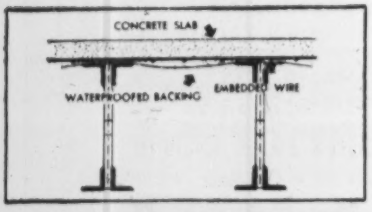
Pittsburgh, City of Vision, is one of the most progressive cities in America today. Once dirty and smoky and threatened constantly with floods, Pittsburgh, now undergoing a renaissance, is one of the country's cleanest cities.

A vast network of dams in the headwaters of the Allegheny and Monongahela make damaging floods virtually impossible. A stream purification program is well under way. A new $5-million-per-mile east-west parkway, partially completed and in use, will speed traffic through the city's heart without cross streets or traffic lights. New skyscrapers, new research centers, new industrial plants, new parks, new off-street parking garages have brought about a boom in new apartments and public housing, new schools and hospitals, new shopping centers.

When buildings of this type are being designed, poured concrete decks are most desirable and when you pour concrete, it is only natural to specify Steeltex Floor Lath, the galvanized steel wire reinforcing which carries its form on its back (see cross section below left).

Steeltex requires no additional form or pencil rod reinforcing. It costs less to install than other types of forms

New 3-story addition to Shaler Township High School added 20 classrooms, upped accommodations from 750 to 1400 students, cost $1.35 million, has gym, auditorium, three shops, offices and locker. Steeltex Floor Lath on all floors. Charles M. & Edward Stotz, Jr., Architects. Geo. H. Chilli, Contractor.



NOTE: In the cross section the weight of the wet concrete forces the backing away, which permits the galvanized steel mesh to assume its proper position in the slab. Steeltex floor lath also performs two other functions: It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.

One man can roll out a 125' roll of Steeltex in a few minutes. Steeltex provides both waterproof form and steel reinforcement for concrete floors, roofs.

The $3.5-million nurses home at University of Pittsburgh towers 14 stories, completely air conditioned, contains library, recreation room, reception rooms, cafeteria seating 400—comfortable living quarters for 600. Steeltex in upper floors. Ingham, Boyd & Pratt, Architects. Trimble Company, Contractors.

Pittsburgh specify STEELTEX® floors and roofs

and reinforcement for concrete because Steeltex can be rolled out like a carpet, stretched with a special tool, and clipped tightly in place by one man (see photo below left).

Steeltex with its waterproofed backing also prevents waste of concrete by reducing leakage to a minimum from the freshly poured slab—craftsmen can continue working on the floor below without getting splattered. Expensive clean-up time is eliminated.

Steeltex insures a strong floor because embedment of steel reinforcing takes place automatically (see note below left). Steeltex allows concrete to cure slowly, properly—guards against excessive cracking—can be installed over any type of joist—will support ample safe loads from 109 to 886 lbs. per square foot depending on spacing of joists and thickness of slab. No wonder Steeltex has been the choice of architects, engineers, contractors, and building owners alike, not only in Pittsburgh but wherever concrete slabs are poured over joists.

If your building plans call for poured concrete floors, roofs, plaster walls or ceilings, masonry veneer or Portland cement (Stucco) exteriors, there's a type of Steeltex reinforcing that will do the job better, faster, with less effort at lower overall cost.

For complete details see the Steeltex catalog in Sweet's or write for your free copy of a new 24-page illustrated booklet "Pittsburgh Steeltex, Backbone of Concrete, Plaster, Mortar." It's yours for the asking.

STEELTEX®

manufactured by the

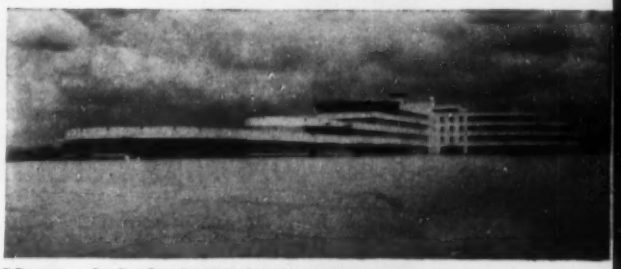
Pittsburgh Steel Products Company

a subsidiary of **Pittsburgh Steel Company**

Pittsburgh 30, Pa.

St. Clair Hospital, Mt. Lebanon Township, Pa., serving the growing South Hills area has 116 beds—cost $1.34 million. Steeltex used in floors. Kuhn & Newcomer, Architects. R. A. Zern, Structural Engineer. H. Busse, Contractor.

Brentwood-Whitehall Shopping Center built on two levels has 25 shops in 210,000 square feet—80% are air conditioned—parks 1,000 cars. All floors reinforced with Steeltex. Forsyth & Blezard, Architects. Leland Cook, Structural Engineer. Landau Bros., Contractors.



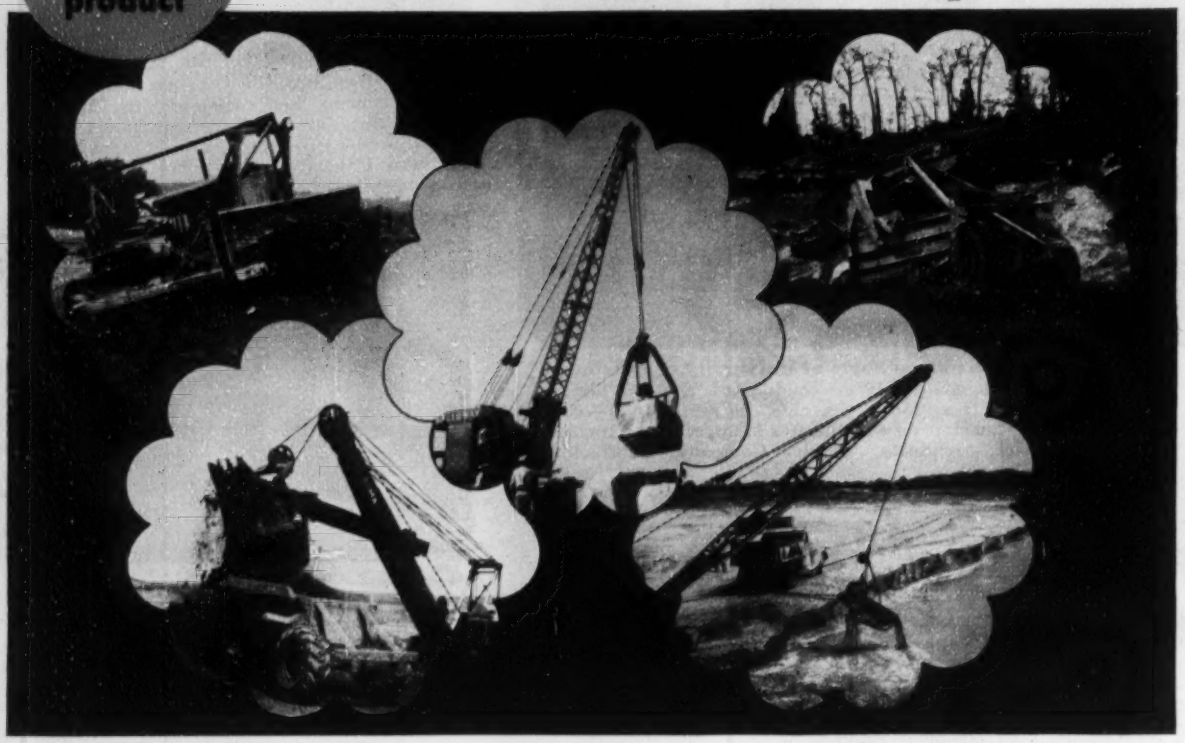
Mammoth decks in this fabulous $10-million terminal building at $42-million Greater Pittsburgh Airport, were poured on Steeltex Floor Lath. Last year 2.5-million people including travelers spent $20 million at ticket counters, restaurants, nightclub, theater, hotel and shops. Joseph Hoover, Architect. Leland Cook, Structural Engineer. Dick Construction Co., Contractors.

Here are other recent buildings in Pittsburgh and vicinity using Steeltex:

Amberson Gardens
Bedford Dwellings
Center-Negley Apartments
Greentree Apartments
Hebron Grade School
Kennilworth Apartments
Pennsylvania College for Women (Administration Building)
Shadyside Presbyterian Church (Chapel)
St. Augustine's High School
Talbot Towers (Housing Project)
Union Railroad (Office Building)
Westinghouse Educational School
Westinghouse Electric Corporation (Atomic Project Buildings)

an ACCO product

American Cable "Tru-Lay" "Green Strand" Wire Rope



If you operate any of these machines, this information may save you money on your wire rope purchases...

• Every machine you use wire rope on has characteristics which must be considered in choosing the rope which will give you the longest service. For instance, the bulldozer and carrier scraper have extremely small sheaves which bend the rope sharply and small drums which cause very severe abrasive and crushing actions on the rope. So the best rope is "Streamlined" Flattened-Strand.

Regular crane service is usually not too hard on rope but sometimes the sheaves are rather small and there is a great deal of whipping and frequently twisting to contend with.

Shovels have big sheaves but are subjected to shock loads and jerks which can yank a rope in two. Draglines also offer a real challenge. Usually they have smaller sheaves. The rope drags in the dirt and it gets one bad shock after another.

For every one of these machines there is one particular Tru-Lay Preformed "Green Strand" wire rope construction and grade which will give better service and save you money. The problems have always been to decide on which construction you need—and where to get it. American Cable has eliminated these problems by setting down correct recommendations of what ropes will cost you least to use, and by making them available at your nearby American Cable distributor.

Get a copy of this FREE book!

"Wire Rope Recommendations for General Contractors," contains recommendations of the correct ropes for every machine you operate. Photographs and alphabetical listings make it easy to use. There is also some interesting information on ACCO Registered DUALOC Boom Cable Assemblies.

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plus ACCO Registered Wire Rope Slings

PHOTO COURTESY LAMSON MOBILIFT CORPORATION, PORTLAND, OREGON

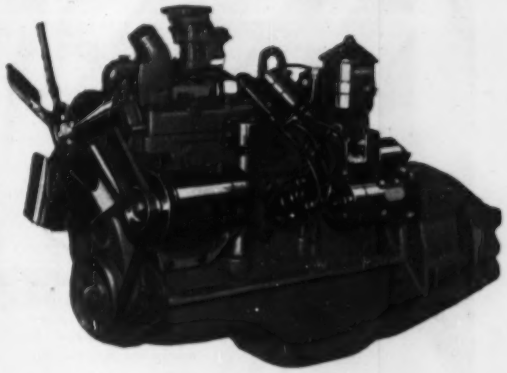
CHRYSLER *power partners save work, equipment. triple clutch life*

Here's a lift truck that slips into tight places like a shoehorn and can lift up and carry nearly 5,000 pounds. This Model D-424 Mobilift nicely combines Chrysler Power and Chrysler gýrol Fluid Coupling with two-speed constant-mesh transmission and hand operated push-pull levers that clutch and de-clutch transmission gears. The end result is a smooth-performing lift truck offering excellent operator control through its entire speed range.

Mobilift is powered with the popular 230 cubic inches displacement Chrysler Ind. 30 Engine—an ideal power plant for this type of equipment from both the standpoint of performance and operating economy. Gýrol Fluid Coupling, designed as a power partner for Chrysler Industrial Engines, cushions sudden starts and stops, triples clutch life and permits the oil-smooth clutch engagement necessary with a constant-mesh transmission.

Whether lift trucks, farm combines, power units for irrigation or oil wells, Chrysler has industrial engines for your selection . . . factory-equipped for your needs.

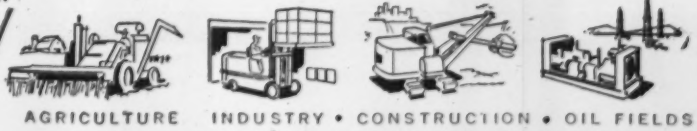
And remember, when you install or specify Chrysler Industrial Engines, you *do not* pay a premium, because Chrysler Power is not expensive. Production-line methods adapted to specialized industrial engine building provide custom-built engines at mass-production prices. See a Chrysler Industrial Engine Dealer, or write: ***Dept. 810, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***



CHRYSLER *Industrial Engines*

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

HORSEPOWER WITH A PEDIGREE



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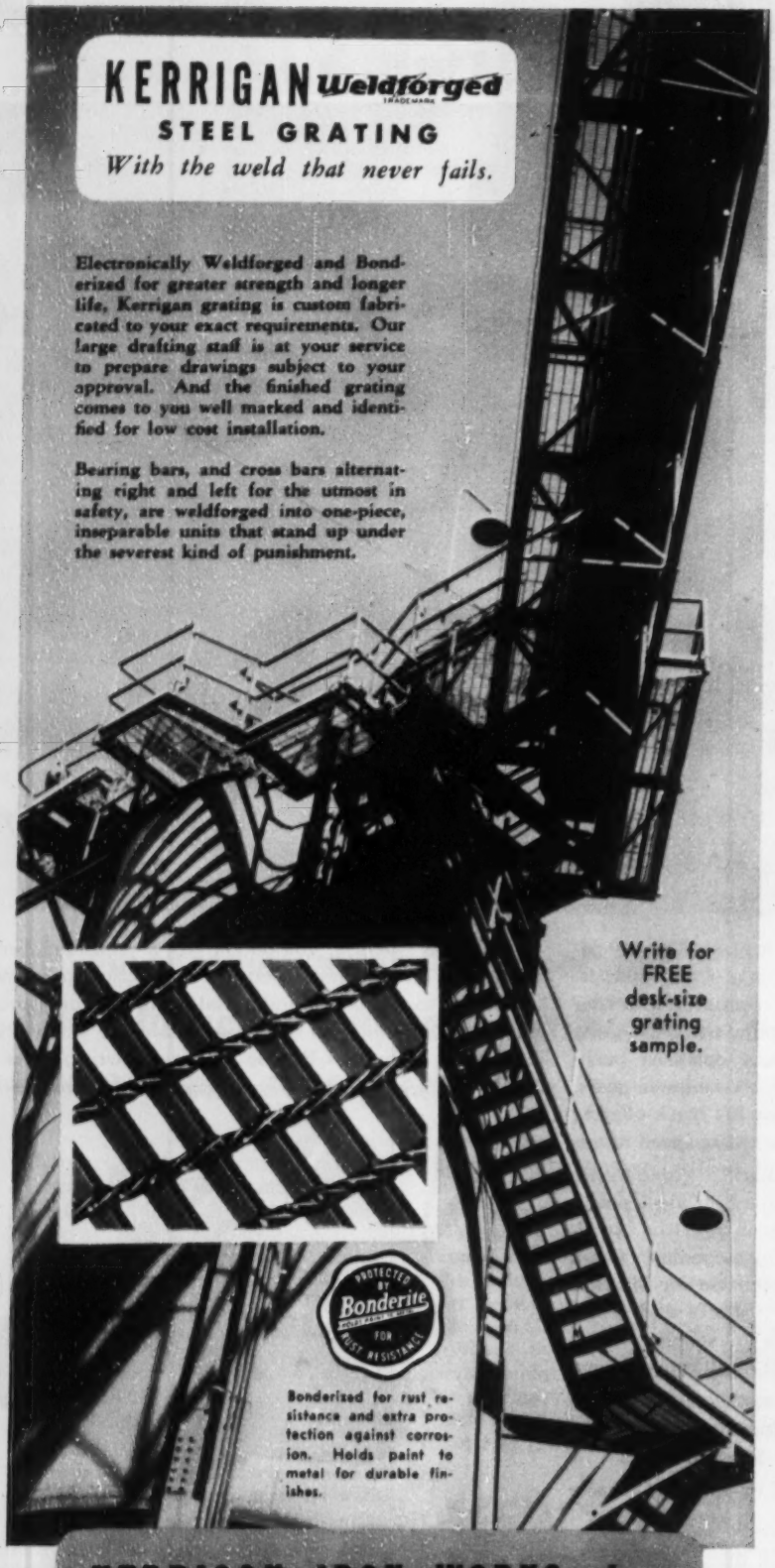
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STEEL GRATING
With the weld that never fails.
Electronically Weldforged and Bonderized for greater strength and longer life, Kerrigan grating is custom fabricated to your exact requirements. Our large drafting staff is at your service to prepare drawings subject to your approval. And the finished grating comes to you well marked and identified for low cost installation.
Bearing bars, and cross bars alternating right and left for the utmost in safety, are weldforged into one-piece, inseparable units that stand up under the severest kind of punishment.
Write for FREE desk-size grating sample.
PROTECTED BY Bonderite FOR RUST RESISTANCE
Bonderized for rust resistance and extra protection against corrosion. Holds paint to metal for durable finishes.
KERRIGAN IRON WORKS, Inc.
General Sales Office — 274 Madison Ave. — New York City

READER COMMENT

Construction equipment

SIR: I have just read J. P. Chamberlain's statement concerning construction equipment on p. 115 of your issue of Sept. 2.

I consider it to be an excellent appraisal of the situation, which has been confronting equipment manufacturers during the first half of this year, and is likely to confront them during the next few months.

Articles of this nature are of great assistance to those of us who have to plan for the future, and make reading of Engineering News-Record an interesting and worthwhile investment in time.

F. SALDITT,
Vice President
Harnischfeger Corporation
Milwaukee, Wis

Military engineering careers

SIR: The $100 a month additional incentive pay recently authorized for medical doctors, dentists and veterinarians in the Armed Services focuses attention on the military's requirements for other types of professional people.

The importance of good medical care for the military establishment—including high standards of preventive medicine—is readily recognized. One has no difficulty in comprehending the fact that the relief given to an aching tooth may be vital to the mental effectiveness of a commander! Similarly, no one doubts the savings to the taxpayer that accrue from veterinary meat inspection. But surely of equal importance to the success of the military mission, and the achievement of "More National Defense per Dollar," are engineers in whose hands lies the responsibility for conceiving and executing projects necessary for our operations, and involving millions of dollars.

The engineering profession at large has a vital interest in seeing that the engineering careers in the armed services (including those in research, public health, and medical services and safety, as well as construction) are given proper recognition. If the quality of engineering in the military deteriorates, then all who have to work with and for the military will suffer, and each of us a taxpayer will bear an increased burden.

I do not think that extra compensation for possession of a degree, title,

(*Continued on page 10*)

REPORT ON WINTER OF 1953-54!

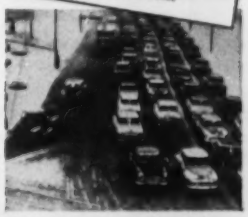
How STERLING *AUGER-ACTION* ROCK SALT helped save over 100 TIMES* the total cost of DETROIT'S ice and snow-control program

*Figures courtesy Glenn C. Richards, Commissioner Department of Public Works, Detroit, Mich.

Here's What Happened When The Motor City Fought 35 Snow Storms With STERLING *Auger-Action* ROCK SALT

MINIMIZED EMPLOYEE LATENESS AND ABSENTEEISM

City experts agree that each of Detroit's 35 snow and ice storms, *without* rock salt's prompt action, would have meant an average ½ hour delay per employee in to-work transportation. $55,638,205 in *saved* man hours! Impassable streets would have cost retailers an estimated $26,342,500! And Detroit Street Railways would have lost more than $2,000,000 in uncollected fares. A total estimated saving of $83,980,705!



SAVED MILLIONS FOR DETROIT TRUCKERS, TOO

Detroit's Trucking Association reports a normal *full day's work* throughout the city's 35 storms last year. If streets had remained snowbound or slippery, they would have had only an average of a *half* day's work for a full day's pay—plus gasoline and maintenance costs. Estimated savings—*seven million dollars!*

HELPED LOWER AUTO LIABILITY AND COLLISION INSURANCE RATES

Though other factors besides the city's "Bare Pavement" policy entered into it, the fact remains that Detroit's liability and collision insurance rates are only about one-half those of other cities of comparable size which do *not* use straight rock salt ice-and-snow-control methods.

IN MAN-HOURS IN DOLLARS **STERLING *AUGER-ACTION* ROCK SALT** **COSTS LESS SAVES MORE**

City, County, State Highway Officials!
SEND THIS COUPON TODAY!

International Salt Co., Inc., Scranton 2, Pa.
The Detroit Report interests me. Would like to know how Sterling *Auger-Action* Rock Salt might effect similar savings in our program. Please have representative call.

Name_____ Title_____

Department_____

Address_____

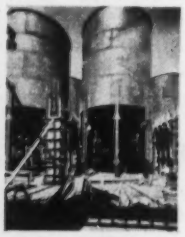
City_____ Zone____ State_____

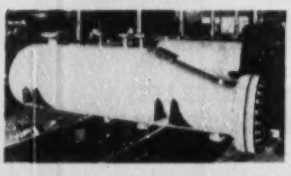
Here's Proof-

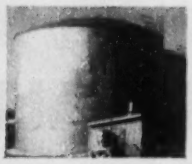
McDonough has the facilities and experience to handle your steel or alloy fabricating job.

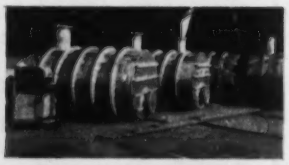
Combined to meet your requirements —sound engineering design, complete manufacturing facilities, experienced workmen.

Experience in every field of industry, from the usual to the most difficult fabricated steel work—regardless of weight, bulk or tolerance. Finished projects pictured below: smoke stack, duct and breeching assembly; furnaces for petroleum industry; soap storage kettles; vacuum tubes for food processing plant; grain storage bins; flue and coolers for smelting plant; stainless steel kettle for petroleum industry; field storage tank; all-aluminum tanks for underground storage of liquid chemicals.









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READER COMMENT

or license is the answer, but rather generalized improvement of the military career. This means real effort on the part of all segments of the profession, working for engineers as a group. I know of no better argument for early creation of a real "Engineering Unity Organization."

ALVIN F. MEYER, JR.
Lt. Col. USAF (MSC)
Omaha, Neb.

On Request Only

SIR: I wish to invite your attention to a mis-statement appearing in your "Washington Observer" column (ENR Sept. 2, 1954, p. 19) wherein it is stated in the third paragraph: "Army Engineers and Navy's Bureau of Yards and Docks have held out for doing Air Force construction."

The Bureau of Yards and Docks has never held out for doing any construction work for the Air Force. There have been many instances when the Air Force has requested the Bureau of Yards and Docks to undertake construction work for them. Whenever it was possible, within the limitations of its existing organization, the Bureau of Yards and Docks has undertaken construction work for the Air Force. There have been instances where it was impracticable to perform certain construction work and the Air Force has been so advised.

Although the Bureau of Yards and Docks has helped out the Air Force and will continue to do so whenever possible, it has never sought Air Force construction work.

J. R. PERRY
Rear Admiral, CEC, USN
Chief, Bureau of Yards and Docks

CALENDAR

American Society of Civil Engineers, annual convention, Hotel Statler, New York City, Oct. 18-22.

American Institute of Steel Construction, annual convention, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 25-28.

Plastics in Building, conference being sponsored jointly by the Society of the Plastics Industry, Inc., the Manufacturing Chemists Association, and the Building Research Advisory Board, at the National Academy of Sciences, Washington, D. C., Oct. 27-28.

American Concrete Institute, regional meeting, Statler Hotel, Los Angeles, Oct. 28-29.

Engineers Council for Professional Development, annual meeting, Alms Hotel, Cincinnati, Oct. 28-29.

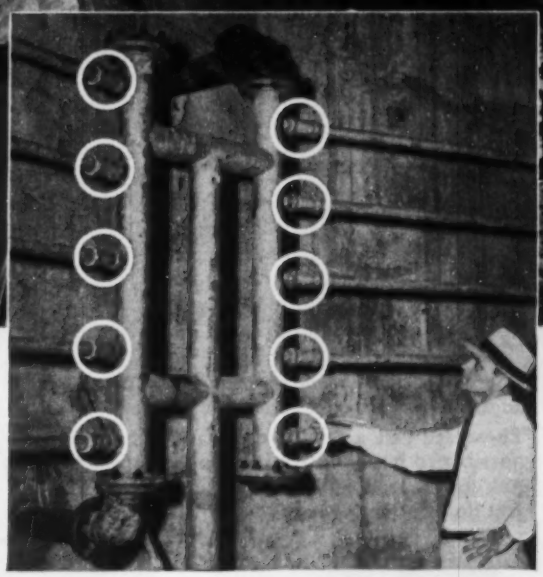
Rail Steel Bar Association, meeting, Edgewater Beach Hotel, Chicago, October 25-26.

American Concrete Pipe Association, fourth annual short course school of instruction, Statler Hotel, St. Louis, Mo., Oct. 25-27.

American Association of State Highway Officials, annual meeting, Olympic Hotel, Seattle, Wash., Nov. 9-11.

CANTON, OHIO

Another construction job simplified with DRESSER COUPLINGS



Canton sanitary engineers find the easiest way to solve difficult piping problems is also the most dependable . . . with Dresser Couplings

Hot water heating coils completely encircle the interior walls of six large digester tanks in the Canton Plant. 450 Dresser Style 65 Compression Couplings were used to absorb expansion-contraction of piping and to simplify close-wall installation.

One of the construction problems at Canton, Ohio's Sewage Treatment Plant was installation of a special welded tee on the effluent line between grid house and primary tanks.

The use of 54" Style 38 Dresser Couplings made the installation relatively simple. Workmen, with a minimum of skill and heavy equipment, quickly made permanently tight Dresser joints.

Recognizing the many applications for versatile Dresser Couplings throughout the plant, Canton engineers greatly simplified tough, close-quarter piping installations.

Write today for more information on how Dresser Couplings can save *you* time and money on water, sewage and industrial waste projects.

DRESSER® COUPLINGS

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston, Texas; 101 S. Bayshore Highway, South San Francisco, California. Sales Offices: New York, Philadelphia, Chicago, Houston, South San Francisco. In Canada: Toronto, Ont.

NO OTHER BLACK TOP PAVER with such flexibility!

Money in the pocket comes from having your machine fit the job—and quickly—no matter what the problem. That's the Adnun Sr.! No other Black Top Paver makes possible such complete flexibility. It measures the correct amount of material, strikes it off to a *true crown,* lays it to a course that rolls out smoothly with tight joints and without hand work. The Oscillating Screed compacts the material and leaves it free from tears or surface fat.

No other paver can lay a width as narrow and no other paver will lay a course any wider. The Adnun can successfully lay any size road stone without modification of the machine, but stone spreading ability is improved with the Adnun Rubber Tired Stone Spreader. There are no spacers to install, no belt changes or complicated adjustments of feeder screws or tampers.

These are just a few of the many Adnun advantages that make it possible to handle the wide range of spreading jobs you often face. Ask for more details and if you need a small tow-type rig be sure you find out about the Adnun Jr. before you buy.

- **Wheel travel eliminates the 500 to 700 parts and their upkeep characteristic of crawlers.**
- **Continuous Course Correction reduces the cost of subgrade preparation and gives smoother pavement.**
- **Fluid Level reduces overrun material and takes out long hollows that won't show under the straight edge.**
- **More engine power for grades.**
- **Smooth, quiet operation, free from vibration that shakes machine apart and causes constant rebuilding.**
- **Overlapping screed action compacts material against parallel course or curb and makes a tight joint. No need for hand work.**
- **Carryall permits easy moving from job-to-job and fast returns for parallel courses. No need for a trailer to get your Adnun around.**

ADNUN
BLACK TOP PAVER

BLAW-KNOX COMPANY
FOOTE CONSTRUCTION EQUIPMENT DIVISION
1922 State Street
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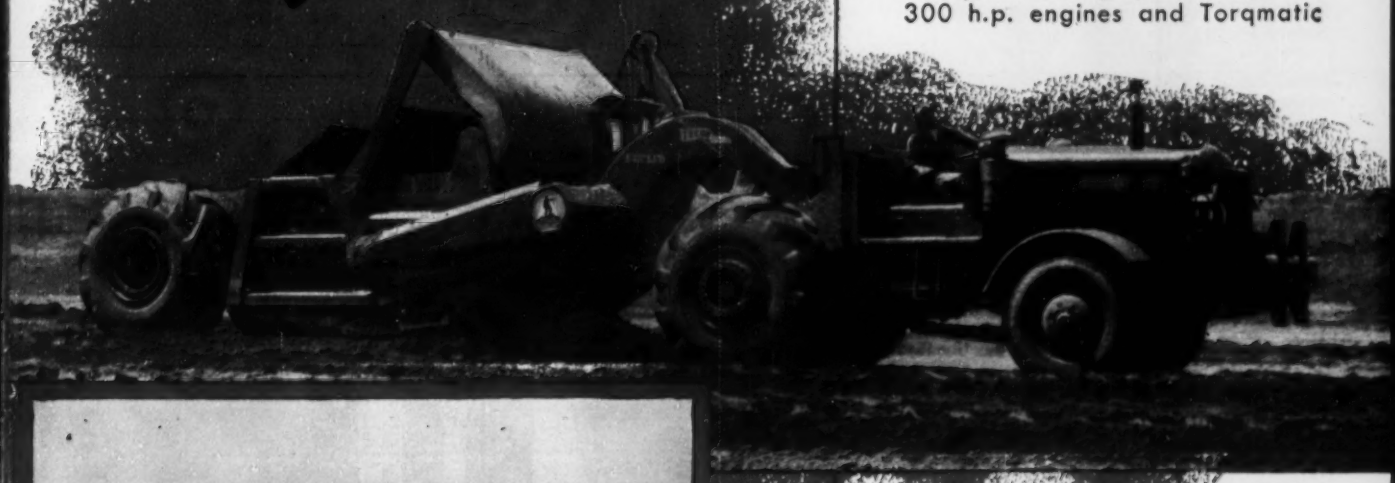
BLAW-KNOX

Faster Cycle Time and more Pay Yards!

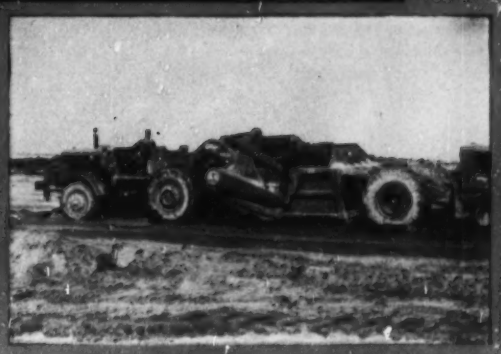
"EUC" SCRAPERS Load Easier— Haul Faster

On short hauls as well as long ones—and in all types of material—"Euc" Scrapers move more pay yards per hour because they are easy loading and maintain fast cycle time. They have the power and traction needed for fast loading, high travel speed and for working on steep grades with full payload.

At McGuire Air Force Base in New Jersey, for example, six "Eucs" with 300 h.p. engines and Torqmatic



Drive and scraper tires are 29.50 x 25 for traction in sandy soil.



Torqmatic Drive utilizes maximum engine h.p. at all times.

Drives average 5 trips per hour on a 3000 ft. one way haul for Tecon Corp. of Dallas, Texas. On another section of this 750,000 yd. runway grading job, the fast cycle time of the Euclid 15:5 cu. yd. Scrapers enabled them to move 265 yds. each per hour on a 2000 ft. haul.

"Euc" Scrapers have struck capacities of 7, 12, 15.5 and 18 cu. yds—have your Euclid Distributor show you how they can do more work at lower cost per yard on your present or future work.

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GENERAL MOTORS CORPORATION
Cleveland 17, Ohio

Cable address: YUKLID Code: BENTLEY

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

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Put versatile INLAND 4-WAY® SAFETY PLATE

to work in your plant and on your products

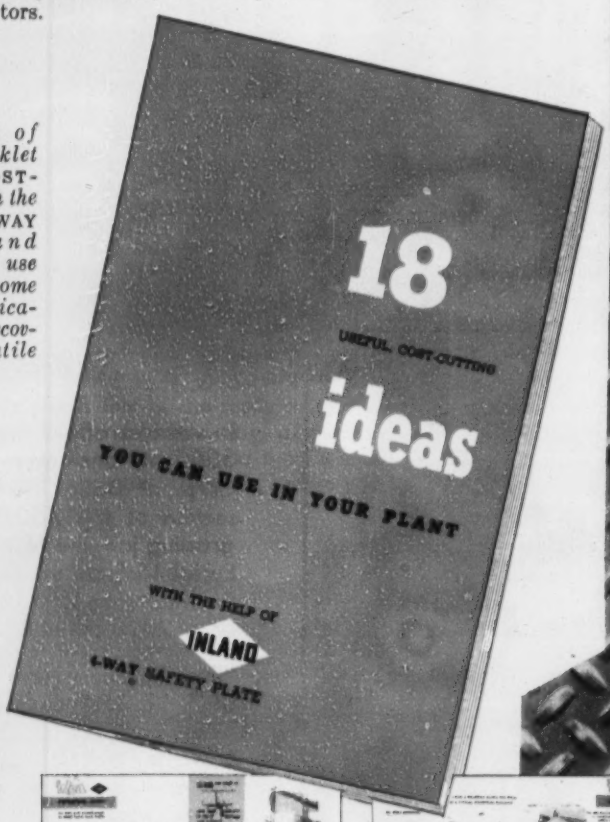
Follow the lead of progressive companies all over the country who are finding more and more ways in which they can use Inland 4-WAY Safety Plate to do the job *better!*

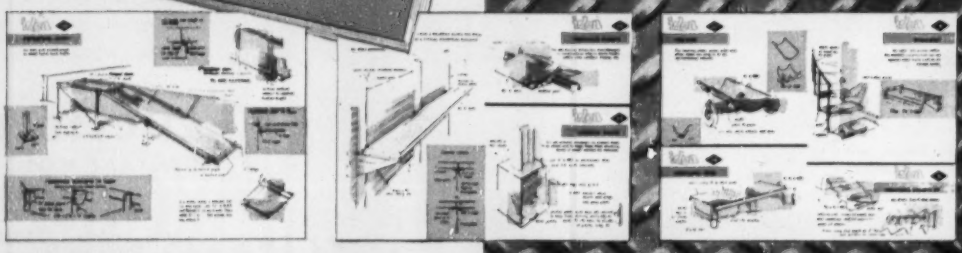
This rugged, economical, steel product, with skid-resisting safety tread rolled right into it, is a practical material not only for those places where feet and wheels must travel but also for many other applications where slip-resistance, durability, fabrication costs and appearance are factors.

Get your copy of Inland's new booklet "18 USEFUL, COST-CUTTING IDEAS with the Help of INLAND 4-WAY Safety Plate" and learn how you can use in your own plant some of the unique applications others have discovered for this versatile product.

Ideas like:

- ____How to fabricate utility dockboards
- ____How to build an all-welded stairway
- ____How to construct a personnel rampway





Complete "how-to-do-it" information is included for each application.

Ask your steel warehouse salesman for your copy, or write Inland Steel Company. Do it today!

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Question:

Can costs be cut on water-line installations?

Answer:

Yes...with the new Ring-Tite Coupling

On this Utah job, snow, ice and difficult conditions caused no installation slowdown.

In this California installation, flexible Ring-Tite joints permitted easy conformance to curves.

Speeds assembly of Transite Pressure Pipe

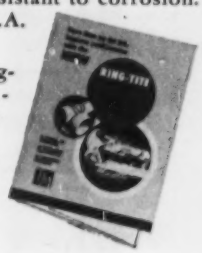
In state after state, contractors are learning that Transite® Pressure Pipe and the new Ring-Tite® Coupling provide fast, sure pipe line assembly with tight, dependable joints . . . strength to assure lasting, trouble-free water mains through the years.

With Ring-Tite, installation costs less—assembly follows digger closely. Typical contractors' comments: "On entire job, trencher and backfiller seldom over 150 feet apart . . ." "Laid 6" Class 150 Ring-Tite at a rate of 5000 feet per 8 hours."

The design of the Ring-Tite Coupling permits quick, easy alignment. To assemble, rubber rings are simply popped into grooves. Then lubricated pipe ends slide in under rings smoothly, easily and surely.

Pipe ends stop positively—with ends automatically separated within coupling. This separation gives the line flexibility to withstand shock and vibration, relieves line stresses, permits conformance to curves. Installations can be completed under adverse weather, temperature or terrain conditions. No complicated equipment is required.

Transite Pressure Pipe and the Ring-Tite Coupling are made of asbestos and cement. Strong and durable, they cannot rust; are highly resistant to corrosion. Tested to A.W.W.A. specifications.



For the new Ring-Tite folder TR-142A—please write to Johns-Manville, Box 60, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville TRANSITE PRESSURE PIPE

NOW WITH THE RING-TITE COUPLING

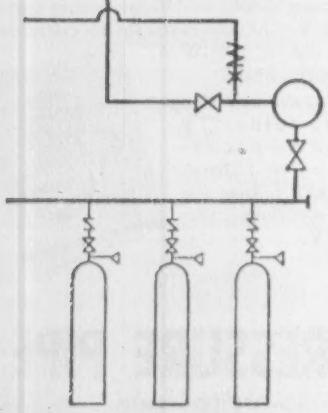
This "Hospital Valve" for OXYGEN now serves many industrial needs . . .

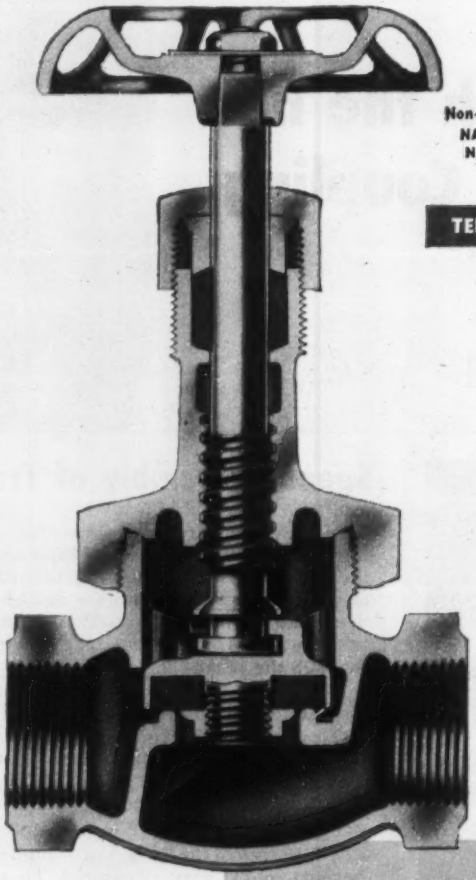
JENKINS Fig. 504 Bronze Globe with TEFLON disc and packing

Jenkins Fig. 504 was designed for the critical requirements of controlling oxygen, nitrous oxide, or any non-flammable gases in hospital services. Industry was quick to note its unique advantages, and it is now frequently specified for systems carrying gaseous fluids for heating, cooling, lighting, and processing, where pressure does not exceed 400 psi, or temperature a maximum of 150° F.

Fitted and tested to comply fully with all Association specifications for hospital services, Fig. 504 has the "extra value" construction throughout that is assured by Jenkins quality standards.

Get details — find out how Fig. 504 can improve efficiency and economy in your hookups for critical service. It's another example of the broad range of "valves for every service" in Jenkins' complete line.





Complies fully with "Standards for Non-Flammable Medical Gas Systems" of—
NATIONAL FIRE PROTECTION ASSOCIATION
NATIONAL BOARD OF FIRE UNDERWRITERS
AMERICAN HOSPITAL ASSOCIATION

TEFLON Disc and Packing

DuPont "Teflon" is a tough, "waxy" inert solid, gray-white in color, tasteless and odorless, non-adhesive and frictionless. Teflon's high resilience assures perfect contact of disc with lapped, crowned seat for gastight closure. Packing is one-piece ring of Teflon, provides dependable leak-proof seal with light compression.

Reinforced Body Casting
High strength bronze body is ribbed along bottom centerline providing extremely high factor of safety. Guards against distortion from vibration, shock, or pipe strains.

Degreased
All bronze parts are thoroughly degreased before assembly.

Polished Spindle
Alloy bronze spindle is polished to permit easy turning and assure leak-proof seal.

Sizes
— ¼" to 2" — 400 lb. O.W.G.

GET COMPLETE INFORMATION from your Jenkins Valve Distributor, or write: Jenkins Bros., 100 Park Ave., New York 17. Ask for Bulletin 116.

JENKINS VALVES

LOOK FOR THE JENKINS DIAMOND

SINCE 1864 TRADE JENKINS MARK

Jenkins Bros.

SOLD THROUGH LEADING INDUSTRIAL DISTRIBUTORS EVERYWHERE

ENGINEERING NEWS-RECORD

Vol. 153, No. 16 October 14, 1954

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THE CONSTRUCTION WEEK

HOW MUCH FOR RESEARCH?—How much does industry spend for research and development—for staff and materials and for housing the activity—and what does industry get back for its spending?

National Science Foundation is going to try to find out, through a survey conducted for it by the Bureau of Labor Statistics. Questionnaires will go to 12,000 industrial concerns this month.

NO POLITICS—A California political candidate who described himself as a civil engineer on a primary ballot—though he is not a registered engineer—will not be permitted to use the designation in November.

Holding with the protests of Jack Y. Long, president of Bay Counties Civil Engineers & Land Surveyors Association, the Alameda County Superior Court ordered omission of the title "Civil Engineer" after the name of Robert B. Rivers, a candidate for the state assembly. Rivers is a civil engineering graduate, and has worked for engineering firms, but has not passed the state licensing examination, court testimony indicated.

TOO MUCH RIGHT-OF-WAY?—New Mexico's Highway commission is definitely unhappy with new Bureau of Public Roads directives on right-of-way requirements.

Said BPR: On the interstate highway system in rural areas, right-of-way shall be 300 ft (old rule—200 ft); in cities, towns and villages, 200 ft (old rule—100 ft).

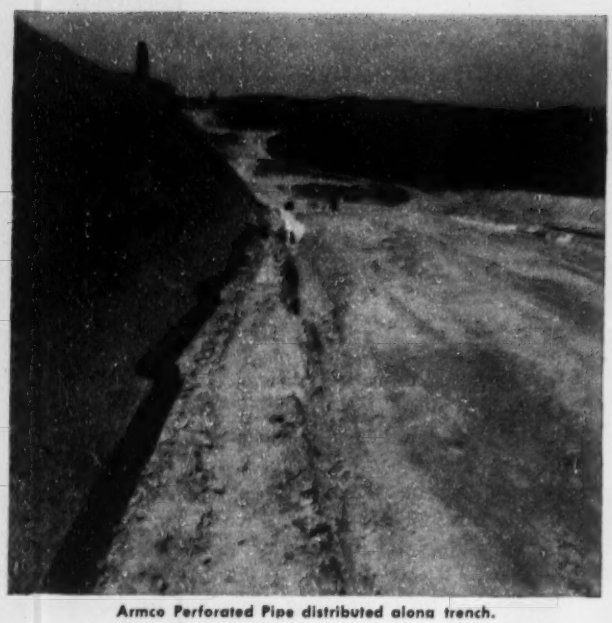
Said the highway commission: Strict enforcement of these requirements would practically destroy business districts in small towns and villages on the federal-aid interstate system, or force complete by-passes. Bigger communities would have to be by-passed too —right-of-way costs would be prohibitive.

FATAL DECISION—A flagman's independent decision that resulted in death of one man and injury to nine others in a blasting accident has resulted in a jury finding of negligence against the contractor.

A coroner's jury heard testimony that the flagman decided to lead a caravan of cars through the construction area without waiting for clearance from the chief powderman on a highway construction job near Sonora. A blast hurled tons of boulders onto the vehicles.

Jurors said they had no intention of bringing criminal charges, but found the Berkeley firm of Ball & Simpson guilty of negligence through faulty supervision.

AIMING HIGH—Tennessee has responded to the President's bold proposal for a $50-billion highway program by setting its sights on a 10-year proposal superhighway building plan involving 1,000 mi. State highway department officials have listed six projects they'd like to undertake.



Armco Perforated Pipe distributed along trench.

Workers set 20-foot section into place.

Simple bolted coupling bands speed up joining.

Backfilling follows right away. No waiting.

Perforated Pipe Job Goes Fast On Turnpike Project

Armco Perforated Pipe simplifies the job of getting rid of troublesome subdrainage water. And it's so easy to install!

The West Virginia Turnpike Project was no exception. The photos above show the four steps in installation. First, the pipe was distributed along the subdrainage trench; then construction workers lifted the pipe into position and added bolted coupling bands. Backfilling followed immediately, and the whole job hurried to completion.

With Armco Perforated Pipe, workers have only *one* simple joint to make every 20 feet—and the positive coupling eliminates danger of disjointing or malalignment. Handling? The 20-foot sections of 6-inch diameter perforated pipe weigh only 76 pounds. And transportation? A single truck can carry *almost a mile* of 6-inch diameter Armco Perforated Pipe.

Why not consider the time, labor and money-saving advantages of Armco Subdrainage Pipe for your next job? Diameters range from 6 to 21 inches. Write for details. Armco Drainage & Metal Products, Inc., 1714 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO | ARMCO

Perforated Pipe

WASHINGTON OBSERVER

Revised regulations on tax amortization of new construction equipment are being prepared—and they'll allow you to take shorter lives on a long list of items. The general rule will be that you can write off around two-thirds of the equipment in half its life.

•

Federal allocation of $20 million to airport construction breaks the log-jam on the use of $130 million of municipal bond money tied to release of the federal allocations. None of the federal money can go for terminal buildings. Federal allocations are earmarked for 164 projects; most of the money goes to the bigger airports.

•

Public hearings will be held soon on $263-million Libby Dam on the Kootenay River which would back water some 42 mi into Canada. Revised plans of the Corps of Engineers would change location of the dam in order to reduce problems of relocating lumber, and mining installations.

Two Canadian-U. S. agencies are proposing relocating Iroquois control dam which is part of the St. Lawrence Power project. They want the dam moved downstream in order to give better regulation to water flow.

Georgia co-ops got another turn down on power from Clark Hill Dam. They appealed to Interior for a commitment that would let them go to Rural Electrification Administration for money to set up a super-co-op distribution—which would negotiate a wheeling agreement with Georgia Power Co. Co-ops now are threatening to seek money from Congress to build their own transmission lines.

•

A crucial development in the Hell's Canyon controversy will be delayed beyond Election Day. The Federal Power Commission staff had been expected to come up with its position this week, but a 30-day stay was granted, to Nov. 10. What the staff concludes, from the lengthy hearings earlier this year, is expected to have an important bearing on the FPC's final decision on whether Idaho Power Co. should have a license to build three dams on the Snake River. Public power advocates want federal construction of one large dam. The delay will deprive both sides of late campaigning material.

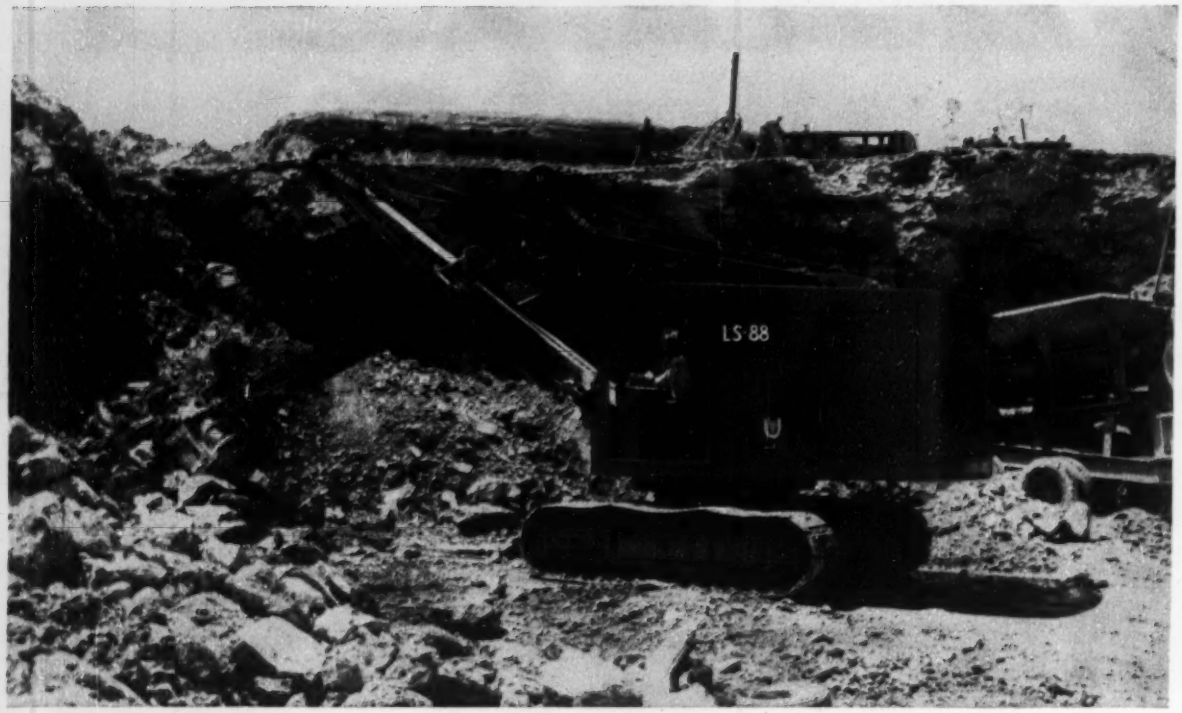
•

New military program of pipeline construction may be in the offing. Air Force officials are studying the economic feasibility of connecting existing U. S. air bases with existing products pipelines that now criss-cross the U. S. Officials making the study already lean toward the belief that the demand for aviation gas and jet fuel at many air bases will be large enough to justify private industry's construction of the connecting lines. There's precedent for military construction of those lines which might not be economical for outside interests to build. Corps of Engineers built 190-mi of 6-in. line connecting Limestone air base in Maine with barge docks at Searsport, Me. a few years ago.

•

Mergers of producers of building materials and construction equipment won't go ahead now without a green light from the government's antitrusters. That's the meaning of Attorney-General Brownell's turndown of the proposed merger of Bethlehem Steel and Youngstown Sheet and Tube—the country's second and sixth largest steel producers. Officials who merge after a warning from the government will be taken to court. The Administration is being tough about enforcing the strict antimerger law passed in 1950.

Introducing... Most power! Most speed in the heavy-duty, ¾-yard class!



It's the LS-88 . . . another NEW Link-Belt Speeder

LINK-BELT SPEEDER does it again! LS-88 is the first heavy-duty ¾-yard shovel-crane with world-famous Speed-o-Matic power hydraulic control! This exclusive feature puts the operator in a class by himself. He works easier, faster, with less fatigue. Also, greater net hp puts more production at his fingertips.

And there's reserve maintenance-saving stamina—more "live" machine weight—to utilize this extra hp. It all adds up to more production minutes, yards-ahead output capacity . . . shift after shift, job after job!

SPECIAL NOTE TO TODAY'S SHOVEL-CRANE BUYERS

Before you buy a shovel-crane of *any* capacity for *any* application, check first with your Link-Belt Speeder distributor. Link-Belt Speeder is moving ahead with several great new machines—available NOW and offering exclusive advantages for you!

LINK-BELT SPEEDER CORPORATION, Cedar Rapids, Iowa

Typical LS-88 standard equipment features

- **Longer lining life**—Internal expanding clutches with alloy cast iron clutch shells give superior friction and wearing qualities.
- **Greater horsepower** — 91 net hp at full load speed.
- **Splined shafting and anti-friction bearings** throughout upper main machinery.
- **Patented advanced crawler** — self-cleaning, smoother travel, longer life.
- **Independent rapid boom hoist**—with power control up *and down*.
- **Gears running in oil** — all horizontal deck gears and swing-travel bevel gears enclosed and run in oil.

13,673-A

LINK-BELT SPEEDER

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

COMMITTEE MEMBERS look thoughtful as they hear recommendations for doubling the nation's spending on highway construction. Members are (left to right): Bechtel, Beck, Clay, Colt, Roberts.

Highway problem is how to raise $50 billion

The top-level White House committee appointed to work out the details of President Eisenhower's plan to build an extra $50 billion of highways during the next 10 years last week heard officials of about 20 organizations tell what they think the new program should be—or should not be.

The two-day hearings made it clear that the key to financing this program, which would more than double the nation's annual highway construction, is creation of a government corporation to sell long-term bonds to private investors and pay them off in relatively small annual payments.

The five-man committee, chairmaned by Gen. Lucius D. Clay, includes Stephen B. Bechtel, San Francisco construction executive, Dave Beck, president of the AFL Teamsters, S. Sloan Colt, president of the Bankers Trust Co. of New York, and William A. Roberts, president of Allis-Chalmers Mfg. Co., Milwaukee.

There was little doubt that the committee would have its ideas in shape in time for President Eisenhower to present a detailed highway construction program to Congress in January. But a lot of material will have to go through the committee wringer before then.

To get this done, the committee set up a rigid schedule. The organizations heard last week were asked to get their final ideas to the committee no later than Nov. 1. The other important group to be heard from—the committee of state governors—will meet right after election day to work up its recommendations.

• **The money problem**—The big problem is how to raise the money for a highway construction program of this size. Many experts figure that bond issues of the magnitude necessary would cut sharply into the investment funds that have been supporting construction of state and local public works, toll highways and industrial and commercial building.

Colt, the banker member of the Clay committee, will make a serious examination of this problem. He said he will attempt to find out if increasing investment money from such relatively new sources as pensions and welfare funds won't raise the total to a level sufficient to cover all needs.

A survey by the American Association of State Highway Officials, made at the request of Congress, estimated that $101 billion would have to be spent on highway and street construction in the U.S. by 1964.

Gen. Clay estimated that revenues available for highway construction during the next 10 years would amount to about $47 billion under the present program. "Reduction of this deficit of $54 billion," he said, "is the goal of our committee."

• **Interstate highways**—In the interests of national defense, it is likely the committee will recommend that the federal government assume the entire responsibility for the 40,000-mi interstate highway system which carries 30% of the nation's highway traffic. This would add up to $20 billion over the next 10 years.

Current work on the interstate system is on a 50-50 matching basis—as on other federal-aid roads—but the last Congress authorized an increase in the federal share to 60%.

(Continued on page 22)

. . . How to finance highway program

Probably the remaining $30 billion of the $50-billion program will require matching funds from the states. This state money in many cases may have to be raised by state-created highway agencies issuing long-term bonds to be serviced by state revenues. This would be particularly true in those 36 states where debt limitations apply.

• **Enough plant and material**—At the Clay committee hearings it was indicated by a number of national organizations that construction plant and materials to carry out the enlarged highway program will be sufficient. George C. Koss, vice president of the Associated General Contractors of America, said "the highway contracting business is more flexible in expanding for added work than any other segment of the (construction) industry." He pointed out that the prevailing competition on highway construction was an assurance of efficient and economical operations.

A survey by the AGC of its member contractors showed that the large majority would double their capacity in two years time and quadruple their capacity in five years provided they knew the long-range program would continue.

Koss pointed out, "No one has even mentioned the possibility of shortages of machinery and equipment for the reason that even though the total construction industry for the ninth consecutive year is establishing a new record volume of work put-in-place many contractors now have idle equipment, most of the dealers are fully stocked, and the manufacturers are producing at only partial capacity.

• **Not enough engineers**—One problem in the program at present envisaged by the Clay committee is the short supply of engineering personnel. If many highway departments have to rely on consultants to help carry out the large volume of work, they may lose a good part of their engineers to these firms at higher wages. However, the AGC and other bodies expect that more young engineers will come into the highway field when the acute need is felt.

• **Right-of-way, a stickler**—The greatest obstacle in the path of a rapid start to the President's highway program probably will be acquisition of right-of-way. A. E. Johnson, president of AASHO, told the committee that the new highway program should carry specific provisions for federal aid to the states to acquire right-of-way. The AGC also pointed out that further study should be given by the states to means of imporving procedures for the acquisition of land.

H. A. Thompson, president of the National Association of Township Officials, told the committee all states should enact ultimate right-of-way legislation and adequate planning and eminent domain legislation. "We believe the Bureau of Public Roads should immediately prepare sample legislation for consideration by all states," he said.

Apart from financing, the role of the federal government would stay within present bounds, it was indicated at the hearing. The states themselves would design, construct, maintain and police the roads.

• **Question: toll roads**—One of the points which aroused most speculation at the hearings was the question of how big a part toll roads should play in the new highway program. Gen. Clay indicated that toll facilities would probably play a minor role. However, the Administration is not at all adverse to toll financing nor is the U. S. Department of Commerce. Commerce Dept. studies have found that 10,000 mi of toll roads in addition to those already planned, could pay for themselves with toll revenues.

Harry J. Krusz, of the U. S. Chamber of Commerce, said for his organibation, "We advocate the toll road method of building new trunk lines where such facilities cannot be provided otherwise." The AASHO took an opposite stand and pointed out that most toll routes would simply parallel the interstate highway system.

Robert M. Reindollar, president of the American Road Builders' Assn., urged that federal laws prohibiting participation of the federal government in toll road construction be relaxed in such a manner as to provide for the full utilization of the toll road method of finance. He said such facilities should be made free of tolls as soon as bonds issued for their construction are retired.

Golden Gate Bridge job

The year-long job of reinforcing the Golden Gate Bridge across San Francisco Bay with a network of 5,000 tons of lateral bracing under the roadway has been completed. The $3.5 million job to stiffen the bridge against wind-induced motion was ordered after winds of 69 mph on Dec. 1, 1951 caused the bridge to vibrate so much that it was closed to traffic. Judson-Pacific-Murphy Corp., Oakland, held the contract (ENR June 24, p. 46).

Indiana toll road

State decides to start its second toll highway

The Indiana Toll Road Commission has decided to build a 131.6-mi toll highway from near Indianapolis to the Chicago vicinity. The road will cost an estimated $178 million, including financing charges.

The toll highway will be 19 mi shorter than originally planned. Traffic surveys prepared by Wilbur Smith & Associates, New Haven, Conn., and Parsons, Brinckerhoff, Hall & Macdonald, New York, showed the section of the original route nearest Indianapolis would not operate at a profitable rate.

The new toll road is planned to link up with Indiana's east-west toll highway across the northern part of the state near the junction of the city limits of Hammond and Gary. Its southern terminus will be a junction with U. S. Highway 136, near Jamestown, Ind.

The road, as originally planned, would have run 181 mi—from Hammond, Ind., to near Plainfield. It was estimated that the road would have cost $186 million with this route.

The traffic surveys for the road showed that its debt service coverage over a 37-year period of earnings would range from 1.53 to 1.59 depending on the interest rate of the bonds which are sold to finance the project.

Commission officials said they would begin immediately to interview bond and investment firms seeking to bid on the issue. An effort will be made to sell the bonds before the end of this year so that construction may get under way next summer. If sale of the bonds is delayed, the construction start on the road probably will have to be postponed until the summer of 1956.

Tomlinson Construction Company, Ltd., of Toronto, Canada, was the apparent low bidder for construction of 8.3 mi of the Indiana east-west toll road, commission officials have announced.

The bid by Tomlinson was $3,990,620.50.

The Canadian firm underbid 14 other road construction companies from six states for the sixth construction contract.

The commission also announced the awarding of a $6,739,835.05 contract to S. J. Groves & Sons Co. of Montpelier, Ohio for construction of a 12.4-mi section of the road. This was the fifth construction contract to be awarded on the east-west toll highway.

Hampton Roads

$19.5-million low bid on bridge-tunnel project is under engineer estimates

Merritt-Chapman & Scott Corp., New York, bid substantially lower than estimates for the first major contract on the $63-million Hampton Roads bridge-tunnel project. The firm's bid was more than $3 million below the figure quoted by the next highest bidder.

For construction of the 7,470-ft tunnel and two bridges—6,190 ft and 3,250 ft in length—the New York engineering firm bid $19.5 million. Next low was the combined bid of $22.6 million from Tidewater Construction Corp., Norfolk, Va., Condon-Cunningham Co., Omaha, Neb., and Peter Kiewitt Sons, Omaha.

Two other bidders were still higher, and two more bids were for construction of the bridges alone. All bids are subject to examination and approval of the Virginia State Highway Commission, bond counsel and consulting engineers.

A highway department spokesman said the Merritt-Chapman & Scott Corp. bid was so much lower than estimates that the overall cost of the big job might be substantially reduced. However, he did not give the estimate figure.

The tunnel will be the sunken-tube type with its major part consisting of 23 sections each 300 ft long. The tunnel sections will be built on shore, floated out to the proper location and sunk by pumping concrete into the protective shells.

Outside diameter of the tunnel will be 37 ft and inside dia, 30 ft. A two-lane, 23-ft roadway will be constructed in the tunnel with a clearance of 14 ft between roadway and ceiling. The tunnel tube will be connected with trestles at each end by means of ramps 910 ft long which will be built on man-made islands.

The trestle on the north approach will be 3,250 ft long and 36 ft wide with a vertical clearance of 13 ft 3 in. from the bottom of the bridge to mean low water and a horizontal clearance of 46 ft between pilings.

The south approach trestle will be 6,190 ft long and 36 ft wide. The bottom of this bridge will have a vertical clearance above mean low water of 13 ft 3 in. for about half the distance and 12 ft 3 in. for the remainder.

Part of this pile-supported trestle will be 46-ft spans; part will be 76-ft spans.

Islands will be built at each end of the tunnel. A solid fill 270 ft long will anchor the south island to a flood wall, almost midway across the water gap. Each island will be protected by a wall 14 ft above sea level and will have a ventilation house and garage for crash trucks.

IN PERSPECTIVE, model shows how 23-mi-long bridge-tunnel project will close the gap at Hampton Roads, Va.

Financing of the project will be through the issue of $95 million to $100 million in revenue bonds. Bids on the bond issue will be opened Oct. 15.

Proceeds from the bond sale will be used, in addition, to refinance the James River bridge system and the George P. Coleman Memorial Bridge across the York River, to pay for the $15-million toll bridge across the Rappahanock River and to liquidate the state-owned ferries which the Hampton Roads bridge tunnel will replace at a cost of $19 million.

Consulting engineer for the project is Parsons, Brinckerhoff, Hall and Macdonald.

Sea water barrier

Quality of water held questionable in study of San Francisco plan

San Francisco Bay may never get a salt water barrier that would turn part of the bay into a fresh water lake. Feasibility of the proposal has been seriously questioned on the basis of water quality by Dutch engineer C. Biemond, who was retained to assist a board of five engineers in studying the problem for the California Water Project Authority (ENR July 1, p. 28).

Based on experience with similar works in The Netherlands, Biemond questioned the effect on water quality of a series of dry years after the construction of upstream storage works now contemplated. He found that flood discharges would not be sufficient to offset accumulations of salinity caused by diffusion from lake bottom muds, transfers of salt water through lockage and contamination from other sources such as unavoidable waste discharges.

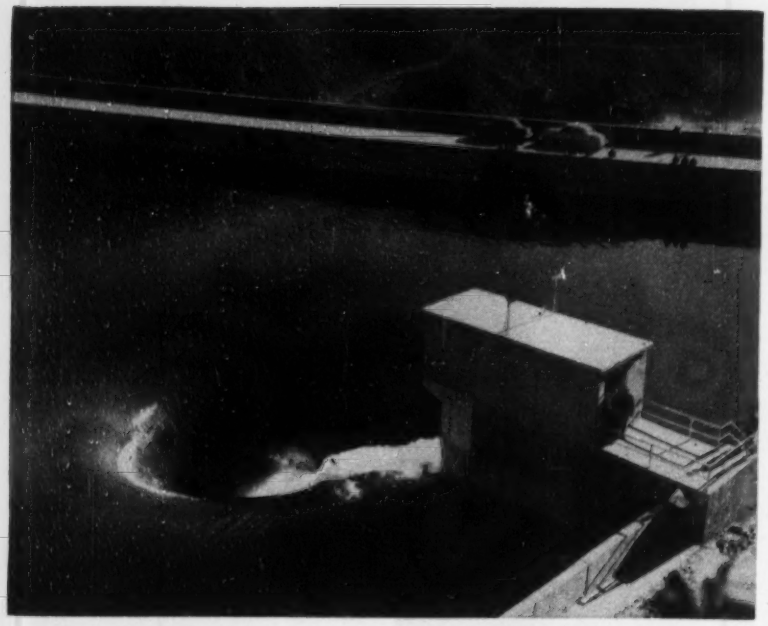
As a result of the findings of the Dutch engineer, the consulting board has recommended that the state engineer staff give precedence to determination of the quality of the water that would be available for use if a barrier were constructed. Accordingly State Engineer A. D. Edmonston has assigned forty highly trained technicians to make the necessary studies. Results are to be presented at a meeting of the consulting board Dec. 6-10. The board's report is due to be presented to the legislature not later than March 30, 1955.

Also questioned by Biemond were several problems of the Sacramento-San Joaquin River Delta region that are important whether or not a barrier is built. He suggested consideration of defined channels through the delta to carry Sacramento, San Joaquin and Mokelumne River floods.

He also advocated an independent canal for conveyance of Sacramento water to pumping plants—like the Tracy Pumping Plant that feeds the Delta-Mendota Canal. Such a canal, Biemond believes, is necessary to protect the quality of water diverted to regions to the south.

State engineer forces are also studying these works for submission of data to the Dec. 6-10 meeting of the consulting board.

The consulting board of five engineers appointed to consider the project is composed of the following: Raymond A. Hill, Hans Kramer, Malcolm Pirnie, Philip C. Rutledge and Charles E. Deleuw.



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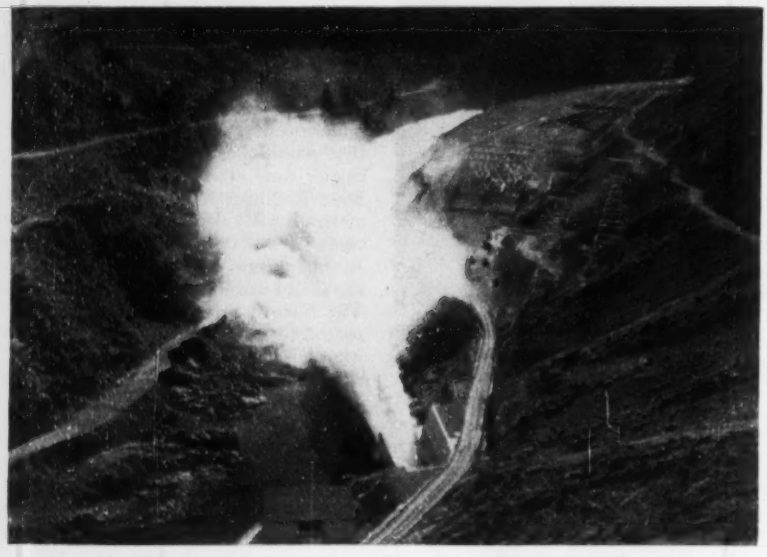


. . . and comes out here

Water poured into the glory-hole spillway of Hungry Horse Dam in Montana at the rate of 30,000 cfs during tests by the U. S. Bureau of Reclamation. Such a flow may never occur again; in normal operation the reservoir will not be allowed to fill.

Hungry Horse is the largest of the few dams in existence with this type of spillway. The operation of the spillway there apparently was entirely successful in the tests.

The control house operates 12-ft-high ring gates. Baffle by control house prevents vortex action. Air is introduced by suction a short distance below the crest level to improve flow characteristics in the tunnel, which varies from 35 ft to 24½ ft in dia.

Water from the spillway tunnel jets into the river canyon below Hungry Horse Dam. Erosion of the construction road (at left, lower photo) and powerhouse access road (right in lower photo) was caused by outlet valve discharge—not spillway discharge. The powerhouse road will be protected by a retaining wall.

Kaiser's dam

U.S. firm hopes to build low-head dam in Canada at cost of $25 million

Kaiser Aluminum & Chemical Corp. has reached an agreement with the Canadian Province of British Columbia which will allow Kaiser to proceed with engineering plans for a $25-million dam on the Columbia River, 30 mi north of the U.S.-Canadian border.

The dam would be located in Castlegar Narrows at the foot of Arrow Lakes. It would be a low-head dam, 35 ft to 40 high, with a reservoir storage capacity of 3,000,000 acre-ft.

Construction of the dam would benefit power plants on the Columbia River below the border, most of which are owned by the U. S. government. It is estimated that these plants would increase their firm energy commitments by 300,000 to 600,000 kw.

The Kaiser agreement with British Columbia calls for water rental to be paid to the province in electrical energy equal to 20% of the kilowatt hours which would be generated by downstream plants of the U. S. government from the new storage created by the dam.

This energy would be collectable at the international boundary or at some point on the system of the Bonneville Power Administration. Should Kaiser be unable to deliver electric power to the province, the agreement calls for payment in cash of the value of the power at the current BPA rate.

Kaiser officials have asked U. S. government agencies concerned with the development and marketing of Columbia River hydroelectric power to approve this preliminary agreement. The cooperation of the U. S. government would be essential.

Negotiations between Kaiser and BPA already have begun. Approval by the Federal Power Commission also will be required. FPC first must determine whether there is a sufficient supply of power in the area. If there is ample power, then FPC can consider issuing permits for export of power and for construction of power transmission facilities crossing the international boundary.

The agreement almost certainly will also be submitted for appraisal to the International Joint Commission. IJC now is engaged in making an overall study of possibilities of development of the entire Columbia River Basin.

The top priority project of the U. S. government for future development of the river now is Libby Dam. One of the favored proposals in Canada is for a big project at Mica Creek.

Seaway dredging

Canadians ask bids for Montreal channel work

The Canadian St. Lawrence Seaway Authority has called for bids for the first construction work on the wholly Canadian section of the project.

The work will be at Montreal and will consist of dredging a channel 7,600 ft long in the St. Lawrence River. Dredged material will be used to build an embankment along the channel.

The new channel is to be on the east side of the river, opposite the Montreal harbor and the entrance to the existing Lachine Canal. (The river flows north at that point.)

The dredged section is between the Montreal Harbor Bridge and the Victor Bridge, where the first lock will be located. This lock will lift ships about 20 ft into the Laprairie Basin section of the river. Ultimately, a second lock with a lift of about 30 ft will be required to take ships past Lachine Rapids into Lake St. Louis.

In addition, two dams will be required, and some or all of the bridges across the river will have to be raised. No locations for the dams have yet been announced.

Special grand jury indicts Pennsylvania highway men

C. H. Buckius, chief engineer of the Pennsylvania Highways Department, and a number of other Pennsylvania highway officials were indicted by an Allegheny County (Pittsburgh) Grand Jury Oct. 1 on charges of conspiring to force state workers to contribute funds to a political campaign in the primary elections which were held in the state last May.

The state officials were among 15 indicted on a recommendation of a special grand jury which probed charges of dunning workers for political contributions.

Buckius was indicted on charges of conspiracy and "macing." George A. Nally, controller of the Pennsylvania Highways Department, was indicted by the grand jury on conspiracy and perjury charges.

Other highways department officials indicted on conspiracy and macing charges were: Oscar Hohing, highway department maintenance engineer for Allegheny County; Thomas McElheny, assistant superintendent of the department's Oakdale Plant; Michael Hertz, foreman at the department's Aspinwall plant; Alexander Campbell, assistant superintendent at the Oakdale plant.

Building defenses against air attack

Nike guided missile installations like this one under construction near Hampton Roads, Va., will guard about 35 critical areas across the nation against attack from the air (ENR Sept. 9, p. 23). Each of the $500,000 installations will consist of two areas—a launching area with underground concrete magazines, fuel storage and maintenance facilities and a control area with radar tracking and control equipment. Excavation work here is for the underground missile storage structures. In the foreground are the missile assembly and test building (center) and the generator building (right).

ASCE officers

Virginia highway official to become new president

William R. Glidden, Assistant Chief Engineer of the Virginia State Department of Highways, will take office as new president of the American Society of Civil Engineers at the organization's annual meeting in New York next week. He succeeds Daniel V. Terrell, Dean of Engineering at the University of Kentucky.

New vice presidents elected were Frank L. Weaver, chief, Division of River Basins, Bureau of Power, Federal Power Commission; and Louis R. Howson, partner in Alvord, Burdick & Howson, Chicago.

New directors are Don M. Corbett, District Engineer, U.S. Geological Survey; Lawrence A. Elsener, San Francisco; Jewell M. Garrelts, professor at Columbia University; Frederick H. Paulson, Providence, R. I.; George S. Richardson, Pittsburgh; and Graham P. Willoughby, Birmingham, Ala.

Glidden was graduated from Massachusetts Institute of Technology in 1912. After several years with the Massachusetts Highway Commission, he moved to Virginia in 1916 to head the bridge division of the Virginia Highway Department.

He has been a member of the engineering faculty of the Virginia Mechanics Institute and has lectured at the University of Virginia and Virginia Polytechnic Institute.

Glidden joined ASCE in 1922. He has served as a director and vice president and was president of the Society's Virginia Section.

N. Y. Thruway Authority concludes record deal

The New York State Thruway Authority has paid $6,950,000 for a 4-mi right-of-way in the city of Buffalo for a portion of the Niagara Thruway. This is the biggest right-of-way transaction on record in New York State.

The authority acquired the property from the Lehigh Valley Railroad. Included was about 4 mi of the railroad's main line, two passenger stations and a freight terminal.

The Niagara Thruway, a branch of New York State's new thruway system, cuts across the center of Buffalo and will become an arterial route in the city's traffic pattern (ENR Mar. 19, 1953, p. 41).

With conclusion of this right-of-way transaction the authority ordered Hardesty and Hanover, consulting engineers, to proceed with final plans for the Niagara Thruway section.

Construction's stake in this election is big

Political campaigning across the nation is making it clearer every day that the construction industry has an important stake in the outcome of the November elections.

How important this stake is can't be measured with accuracy now. But it is certain that construction, now rocking along at near record levels, will feel the impact of the balloting Nov. 2.

Construction usually is more vulnerable to political swings than most other industries, no matter which party happens to be in power. And this year is not likely to prove an exception.

President Eisenhower, with a Republican Congress behind him, certainly would carry on with his general policies of cutting federal spending and encouraging private investment all along the line, from hydroelectric development to industrial expansion.

It's if the Democrats should win control of one or both houses—as some pre-election samplings of public opinion seem to indicate—that construction will have to trim its sails to the shifting Washington winds.

• **What if the Democrats win** —Probably the most important result of a Democratic victory would be the split government it would create with Democrats supreme in Congress and Republicans still in control of the federal administrative machinery.

This prospect of a stalemate in Washington—aside from setting up new hurdles for any sort of a legislative program—could have an important emotional effect. It might result in the same sort of a blow to business confidence generally that President Truman's unexpected victory in 1948 did—with the same sort of brief, moderate dip in business activity, including construction.

The other side of the coin, however, would be the prospect for increased federal spending. A Democratic victory would give that party control of the purse string, and Democratic Congresses are traditionally big spenders.

Eisenhower still would retain control of the Treasury Department's checkbook. You could expect his Administration to try to slow down any federal spending splurge by refusing to commit all the funds appropriated by Congress, but the net result probably would be some modest increase in federal spending. The military budget, in particular, might be increased. And that might make more money available for military housing and for military base construction.

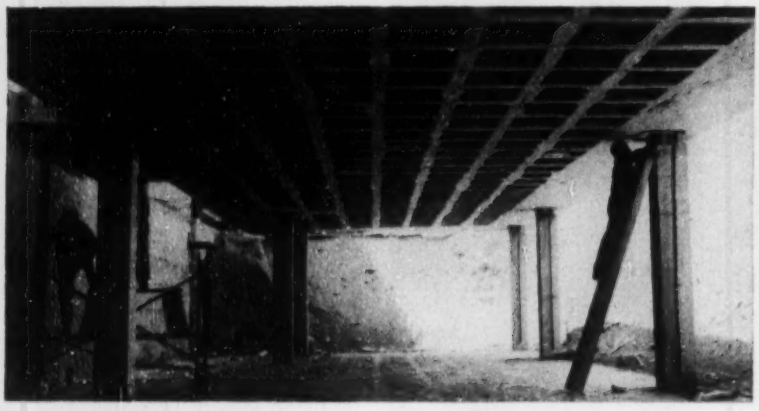
There's no way to be specific about how a Democratic victory would affect all the issues important to construction, but here's how prospects shape up now:

• **Power**—A Democratic Congress, with a large proportion of public power advocates, certainly would launch a massive attack on the Eisenhower "partnership" power policy. Dixon-Yates would be a likely first casualty.

Democrats would push new public power projects, voting new authorizations and appropriations. But Eisenhower is not likely to back down on his "partnership" policy. The result might well be a two-year stalemate on power development.

• **Housing**—The new omnibus housing act will just be getting well started next year, and the Democrats aren't likely to ask for broad changes in the law. What they will go after—and likely get—is increased public housing which the last Congress held to a minimum.

• **Highways**—Whether it is Democratic or Republican, the next Congress can be expected to go far in support of President Eisenhower's highway program. The need for better highways is generally appreciated in Washington.



Lift-slabs get bigger and bigger

A shopping center under construction in Spokane, Wash., is using the lift-slab method to raise big, prestressed, waffle-type slabs on reinforced concrete columns. One of these slabs is the heaviest yet lifted by this method.

The four units of the shopping center will require a total of 18 lifts. There will be 64,000 sq ft of slabs in the project. The largest single slab is 96x120 ft and weighs more than 500 tons. A lift-slab roof for Temple Isaiah in Los Angeles, erected in 1952, weighed nearly as much (ENR Nov. 20, 1952, p. 44).

The big slab in the shopping center was lifted on twenty 16x16-in. reinforced concrete columns by 52 "climbing" jacks designed for the job by Vernon Welborn, Las Vegas, Nev., consulting engineer.

The slabs were prestressed with 9-wire cables with button heads pressed on the ends for anchoring at the edges of the slabs. H. Halvorson, Inc., is general contractor for the North Town shopping center, a project of E. C. McCarthy & Associates. Carleton Tollefson is the architect, and Kenneth P. Norrie & Associates, the structural engineers.

Honolulu tunnel

Job, beset by cave-ins, may be resumed under new construction rules

Although findings of a New York consulting engineer's investigation of cave-ins that halted work on Honolulu's Koolau Mountain traffic tunnel have been withheld, operations may be resumed under a plan devised by city authorities, the contractor and the territorial labor department.

Mayor John H. Wilson, who lost his bid for re-nomination in the October primary, has refused to release a report made by Francis Donaldson, New York consulting engineer who was retained by the city to probe the cause of three cave-ins, the last of which on Aug. 14 killed five men and led to suspension of the project (ENR Sept. 16, p. 25).

The 82-year-old mayor's refusal to release the report "as long as I'm in office"—which means until Jan. 2—is based on his contention that the findings will help the city-county in any court action over the tunnel contract. He argues that keeping it secret is part of his responsibility to the city.

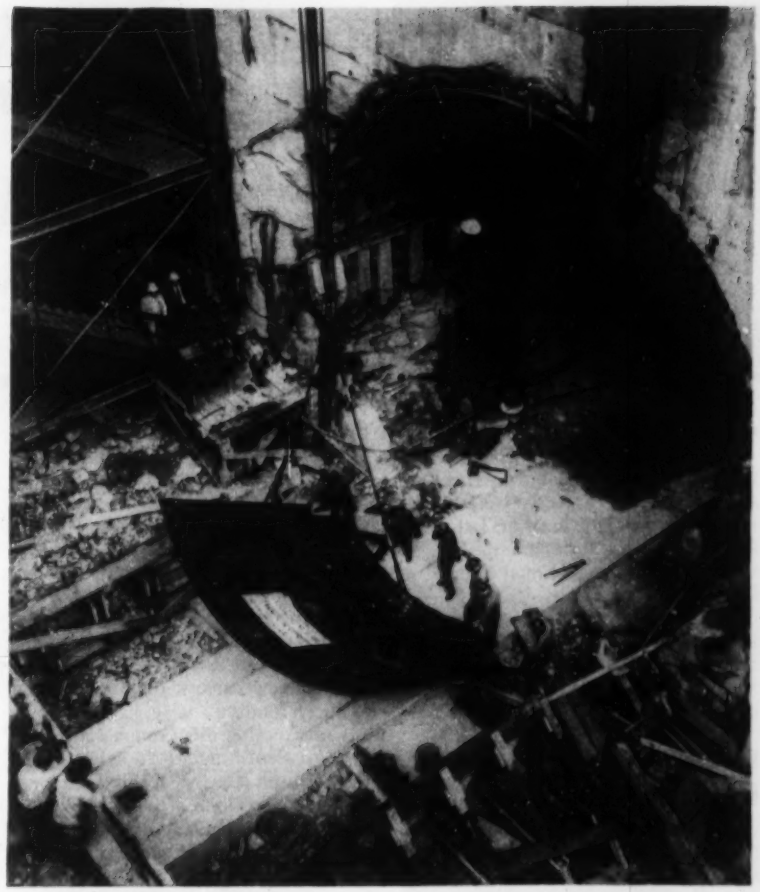
The tunnel, which has been named for the mayor, was a major, although indirect, issue in the primary campaign. Considerable fuss was made in the Honolulu press over Wilson's handling of the consultant's report.

The newly announced plan for resuming work on the tunnel, which will require approval of the U. S. Bureau of Mines, calls for:

- Filling the two surface sinkholes created by the three tunnel cave-ins. Each is about 75 ft in dia. They vary in depth from 30 to 50 ft.
- Constructing a drainage ditch to see that no water collects in the sinkhole area in the future.
- Driving a 3-in. pipe down through the larger sinkhole to the tunnel ceiling, then pumping concrete through it to stabilize the ground.
- Inserting a 1-in. pipe in the 3-in. pipe, resting on the concrete at the bottom. It will provide a gage to provide instant warning against future cave-ins by measuring any soil settling.
- Removing the muck now clogging the last few hundred feet of the tunnel to permit installation of steel ribs.

Driving of the 2,700-ft tunnel had progressed 2,100 ft into the mountain at the time of the cave-ins. The last few hundred feet are mud-clogged.

Donaldson is believed to have recommended a drift method of boring small shafts around the circumference of the main bore and filling them and the tunnel walls before the main body of soil is excavated.



Big shove next on Lincoln Tunnel job

Shield assembly at the New Jersey end of the Port of New York Authority's third Lincoln Tunnel tube under the Hudson River means that driving will soon be underway. Then will start again the familiar operation that American tunnel builders have made famous pushing, mucking and cast iron ring erection until another subaqueous roadway is finished.

This Lincoln tunnel shield will be 31 ft 8 in. in diam and 18 ft 4 in. long. It will move first through several hundred feet of rock, then the airlock doors will be closed, and the push through a mile of Hudson River silt will begin.

The push will be supplied by twenty-eight 200-ton hydraulic jacks. Each move will be 32 in., the width of a ring of cast iron lining. All rock will be mucked as excavated, but the silt will be allowed to remain in the tunnel as ballast until all of the lining is in place. Only about 20% of the silt encountered will enter the tunnel, the rest being merely pushed aside by the shield.

Contractor for the job is a combination made up of Mason & Hanger, Arthur A. Johnson and McLean-Grove. They also excavated the New Jersey shaft from which the shield will start. The New York shaft, where its journey will end, was provided by the Gull Contracting Co. The shield itself is a product of the American Locomotive Co.

Chief Joseph gets ready to go to work by spring

Less than 40,000 cu yd of concrete remain to be poured for Chief Joseph Dam on the Columbia River in Washington. Final concrete pour for the 981,000-cu-yd structure is scheduled for mid-December.

Chief Joseph will go into operation next spring. The spillway structure now is 97% complete and the powerhouse 81% complete. The last seven crest gates atop the dam will begin going into place early in November with the last one scheduled for placement by Feb. 1. On the intake structure, half of the 20 intake gates and six of the 16 penstock tubes are completed; the rest will be finished by Jan. 1.

Kansas engineering groups achieve unity by merger

Two state engineering societies with closely parallel objectives are one too many for Kansas, leaders in the profession there have been saying for years. Two tries at a merger were unsuccessful, but on the third attempt unity has been achieved.

The Kansas Engineering Society, founded in 1909 and the larger of the two, voted 82% for the merger and 18% against. The Kansas Society of Professional Engineers, founded in 1944, voted 97% yes and 3% no. About two-thirds of the membership of both societies took part in the voting.

The boards of the two societies, merging under the name of the Kansas Engineering Society, were to set up a temporary organization last week. One objective will be to apply for affiliation with the National Society of Professional Engineers.

The new constitution provides for three grades of membership—professional, associate and engineer-in-training. It requires that 75% of the membership consist of professionals.

Dam group changes date for study tour in France

At a meeting of the executive committee of the International Commission on Large Dams in Paris, Aug. 19, a change was voted in the dates for the study tours to be held in conjunction with the Fifth International Congress scheduled for the French capital next summer.

According to Francis S. Friel, consulting engineer, Philadelphia, who attended the meeting as the U. S. representative among the 34 individuals from 14 countries who were present, the study tour in France will precede rather than follow the congress sessions in Paris. The North African study tour will begin at the conclusion of the sessions. Originally both tours were to follow the congress.

The dates for the congress sessions in Paris remain unchanged—May 31 to June 4, 1955.

Mr. Friel, as chairman of a subcommittee on awards honoring past presidents, past vice presidents and past general secretaries, rendered a report to the executive committee and attended its sessions. He also conferred with Carl P. Vetter, chairman of the U. S. Committee on Large Dams, who came to Paris from Baghdad, where he is temporarily engaged in flood control and irrigation work. A particular object of their conference was to discuss the possibility of holding the Sixth Congress on Large Dams in the United States in 1958.

LABOR

Apprentice loss

Study shows that most trainees who give up are after better pay

More than three-fourths of the apprentices in all U. S. industry who quit training do so voluntarily—and the most important aspect of that fact is that better pay or financial aid of some sort would prevent almost half the loss.

There are other key points for industry to consider, too: A lot of trouble starts with the method of selecting apprentices. More attention could be focused with profit on not only the financial needs of applicants for apprenticeships but also on their interest in the trade selected and the level of their ability. Another problem is that of getting them well established in their new careers, once a selection has been made.

Construction men, much concerned with replenishing their labor force (ENR, June 10, p. 28), this week were taking a close look at what the Labor Department's Bureau of Apprenticeship found when it studied a group of apprentices who did not finish training.

Some 77% quit of their own accord; layoffs, discharges and program failures accounted for 23%.

Of those who quit voluntarily, 41% needed higher earnings or a steadier income; 12% could not acquire the necessary skills; 6% disliked the trade they chose; 6% went into business for themselves.

Many of the apprentices shifted to other fields, but about half of them remained in the same or a closely related field. Shifting occurred at a higher rate among those with the least training. It was relatively high in the building trades.

Those who left because they needed more money did achieve temporary financial gains. But the survey indicated they would have earned more money in the long run if they had completed training. Only a few who quit early in their training were later found in jobs of responsibility the survey indicated.

Nevada studies changes in compensation law

Whether private insurance companies should be allowed to write workmen's compensation insurance in Nevada in competition with the state Industrial Commission—which now enjoys a monopoly—is one of a number of issues slated for study by a 16-member labor-management committee.

The committee will be formed late in October on the urging of John Cory, Industrial Commission chairman.

Other subjects for study, suggested by Cory include:

Relationship of the Industrial Commission to the executive branch of the state government; creation of an appeals and review body to consider controversies resulting from commission actions on claims and rates; a review of benefit schedules; whether safety standards should be established by law rather than as at present by commission rules and regulations.

Labor briefs . . .

• **Nike slowdown**—A slowdown officially blamed on an organizing drive by AFL building trades unions appeared to be ending around Baltimore. Four of 13 Nike guided missile sites around the city are being constructed by the firm of Dominion Contractors, Inc., which is an open shop. The union drive (which included picketing) kept many men away from the sites. By this week, however, workers were starting to trickle back to their jobs.

• **Big boost**—Louisville cement masons are now at work under a new wage contract that boosted wages 17 cents an hour to the end of 1954, and another 13 cents for 1955. The two raises will bring the masons up to $3 an hour.

• **Odd strike**—Construction of the St. Lawrence Seaway and power development went through its first strike—by owner-truckdrivers. The men had been employed by a Canadian contractor to haul dirt in their own trucks to build an access road. The truckers contended that they were losing money while hauling at 45 cents a cubic yard of fill. They wanted to be paid 15 cents more.

• **International coverage?**—U. S. workmen employed on projects overseas often aren't covered by local compensation laws—and also may not be covered by laws of the U. S. To remedy this situation, the International Bar Association has appointed a committee to study the matter and to suggest possible international agreements.

here's **PROOF**

GRIFFIN WELLPOINT YIELDS MOST WATER

ESTABLISHED 1880

United States Testing Company, Inc.

HOBOKEN, N. J.
TELEPHONE: HOBOKEN 3-3166

NUMBER
E-9687
(Refer to this number)
June 8, 1954

REPORT

Client: Griffin Wellpoint Corp.
881 East 141st Street
New York 54, New York

Subject: Comparative Flow Efficiency Test on five brands of Wellpoints

Following is a summary of the test we conducted comparing the performance efficiency of wellpoints manufactured by Griffin Wellpoint Corporation, with those of four competitive brands.

Our procedure was to pump water from a reservoir through each wellpoint into a calibrated tank. The rate of flow through the wellpoint determined the relative efficiency. Samples were furnished and identified by the client.

The results are tabulated below:

	Vacuum in.	Pump Speed RPM	Time Sec.	Volume Gallons	Gallons Per Min.
Griffin	25	1625	66.6	100	90.1
Wellpoint A	25	1663	72.5	100	82.6
Wellpoint B	25	1650	72.5	100	82.6
Wellpoint C	28	1700	129.0	100	46.5
Wellpoint D	28	1706	148.1	100	40.5

From these results it may be concluded that the Griffin Wellpoint yields more water than the other brands tested.

United States Testing Company, Inc.
BY John Mooney

Page 1 of 1

Supervised by Alan E. Surosky
Alan E. Surosky
Manager, Engr. Div.

OUR LETTERS AND REPORTS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED, AND THEIR COMMUNICATION TO ANY OTHERS, OR THE USE OF THE NAME OF UNITED STATES TESTING COMANY, INC., MUST RECEIVE OUR PRIOR WRITTEN APPROVAL. OUR LETTERS AND REPORTS APPLY ONLY TO THE SAMPLE TESTED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS.

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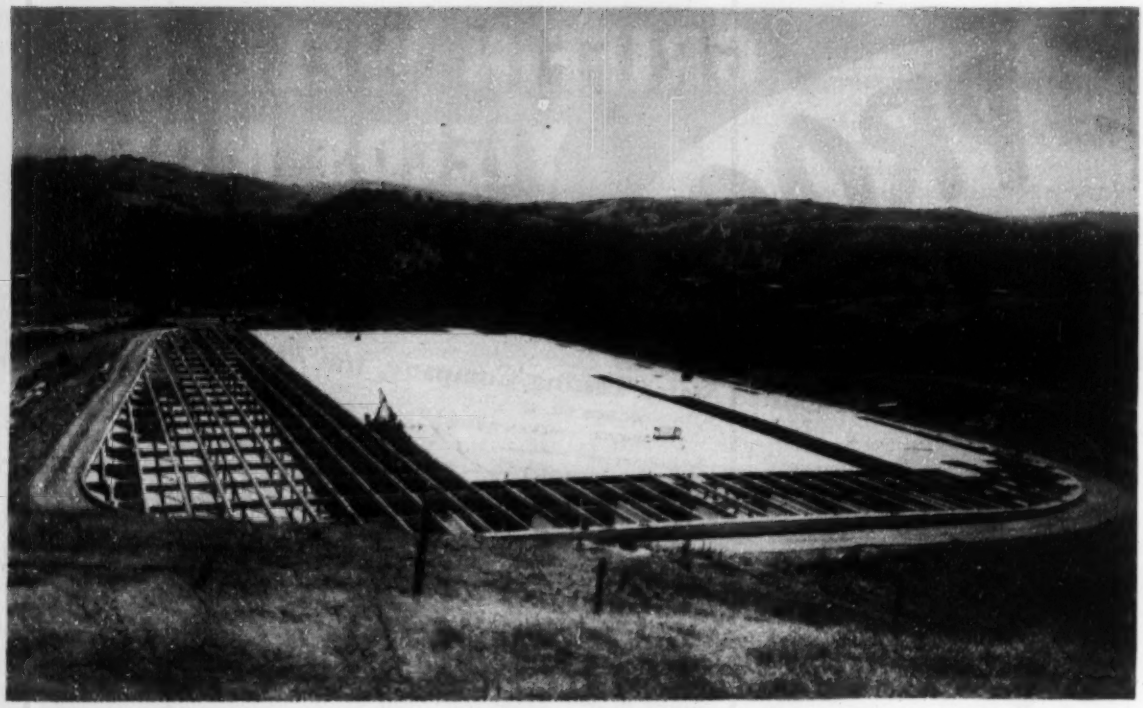


149,000 SQ FT OF ROOF tops this 19 mg water supply reservoir in hills east of Oakland.

Reservoir has precast roof that resists earthquakes

A 19-mg water distribution reservoir with an earthquake-resistant, precast-concrete roof has just been completed in the hills east of Oakland, Calif. It is the second such structure to be built for the East Bay Municipal Utility District with a roof of precast-concrete elements.

To meet increasing water demand, additional units are planned with design modifications resulting from experience on the first two.

Total contract cost of the new installation (known as Leland Reservoir), excluding real estate, was $575,000. This was broken down into five different supply and construction contracts: for example, separate bids were called for furnishing and for installing the precast-concrete members.

The columns, girders, beams and slabs are joined by welded steel plates, angles and bars cast into the members, to make the entire 149,000-sq ft roof a rigid unit. Each exterior beam and girder frames into a rubber bumper that provides yielding resistance to earthquake and temperature expansion thrust.

The 516-ft length of the reservoir includes 70 ft of 2½ to 1 slope at each end. Sides are similarly sloped. Bottom is trapezoidal in shape with greatest bottom width being 157 ft and narrowest being 79 ft. Shape of the reservoir is a compromise between the natural topography and the use of a precast roof.

In general, the entire reservoir is founded on excavation. Fill is involved only where trenches were cut for inlet or outlet conduits.

• **Column details**—The 11x11-in. columns are spaced on 24-ft centers in both directions, bringing some column footings up on the side slopes.

Side-slope footing blocks were cast in hand-excavated holes at Leland, resulting in an irregular shape for the underside of the concrete lining under columns. Consideration is being given to casting sideslope footings on top of the 4-in. thick concrete lining on future work. This procedure is followed for footings based on the reservoir bottom (as opposed to the side slopes).

The 11x11-in. columns are up to 28 ft in length. Columns longer than 22½ ft are reinforced with four No. 6 bars; shorter columns are reinforced with four No. 5 bars.

Columns are set in 12x12-in. grout-filled recesses in the footings. Since there is no rigid connection between column and footing, the columns are assumed to be pin-connected for design purposes.

• **Girder details**—Girders run transversely across the reservoir. They are 23½ ft long; 11 in. wide; 2 ft deep; weigh 3.3 tons.

Beam spacing is 9 ft 7⅞ in.—or five beams for each two column bays. The beams are the same length as the girders, but are 9 in. wide by 18 in. deep.

Both beams and girders are provided with lifting hooks 3 ft from each end; these hooks are burned off the beams before the roof slabs are placed.

A 3x3x3⅜-in. channel is anchored into the bottom corners of each end of all of the beams and girders, and the 3-in. bottom edges of these channels are welded to plates set in the top of the columns or in the top of the girders as the case may be.

Girders and columns are erected simultaneously with the necessary welding performed before the lifting slings are removed. Beams go in place immediately following the girders on which they rest, and are also welded immediately. Thus, no bracing is required—the assembly is rigid as soon as erected.

• **Traveler places slabs**—The traveler that placed roof slabs was the product of real construction ingenuity. The 390-lb slabs are 2 ft wide by 9 ft 4½ in. long. Thickness of all four edges is

3½ in. while the middle portion of the slab is only 1 in. thick.

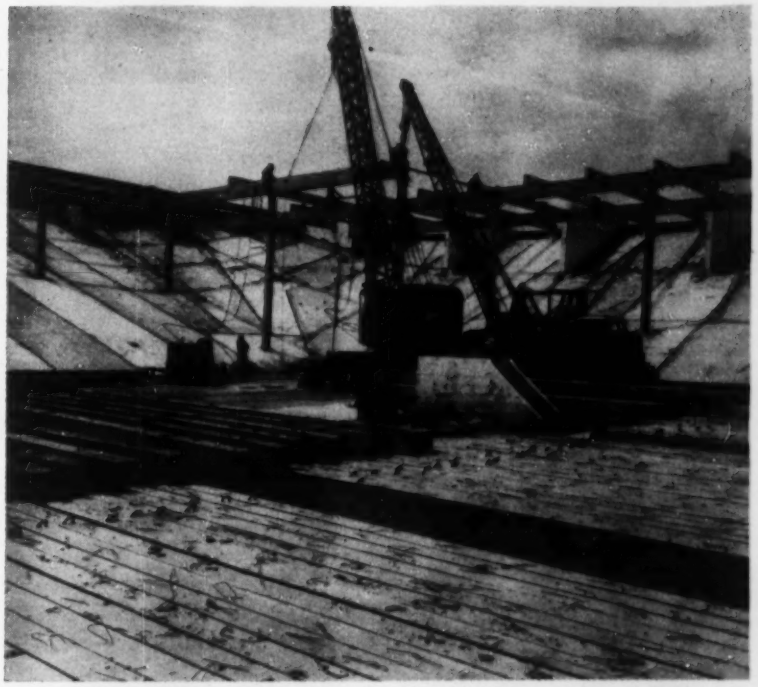
Slabs are delivered to the job in bundles of six, lowered to the bottom of the reservoir by a crane and moved to proper position by fork-lift truck. The bundles are then broken open and the fork-lift places the slabs on a lifting jig or "Christmas tree," which has six pairs of forks, each pair holding one slab. Then it is a relatively simple matter for the "tree" to be hoisted to roof level and the slabs placed.

Lifting and placing is done by a self-propelled traveler that has flanged wheels so that it may ride the beams. Motive power is compressed air working on a small air pump; lifting power is a gasoline engine.

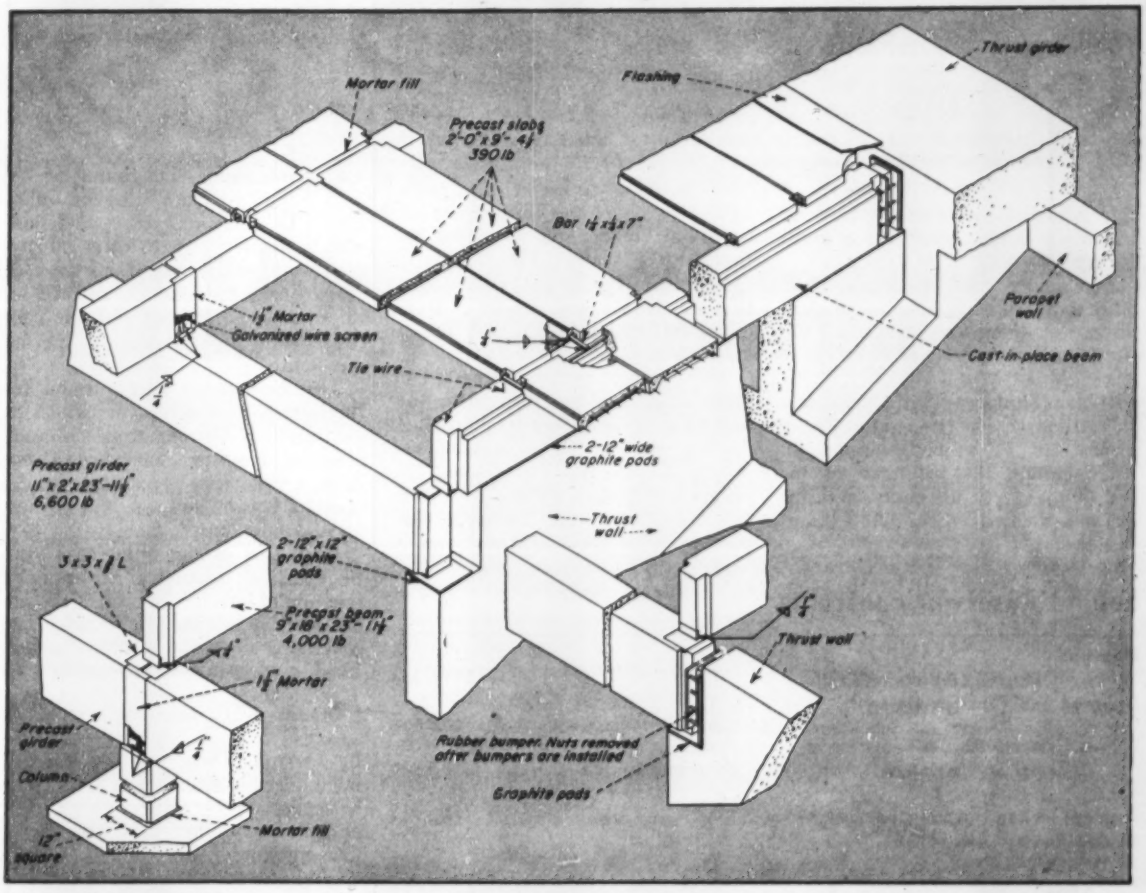
The traveler places slabs in the central portion of the reservoir roof; slabs near the edge are placed by a crane operating from the perimeter road.

The slabs have a lip, or notch, at each end that fits over the beams; corners are recessed, with a 1¼x¼-in. bar extending out of the concrete. A welding strap of similar flat stock connects four slab corners. The welding

(*Continued on page 32*)

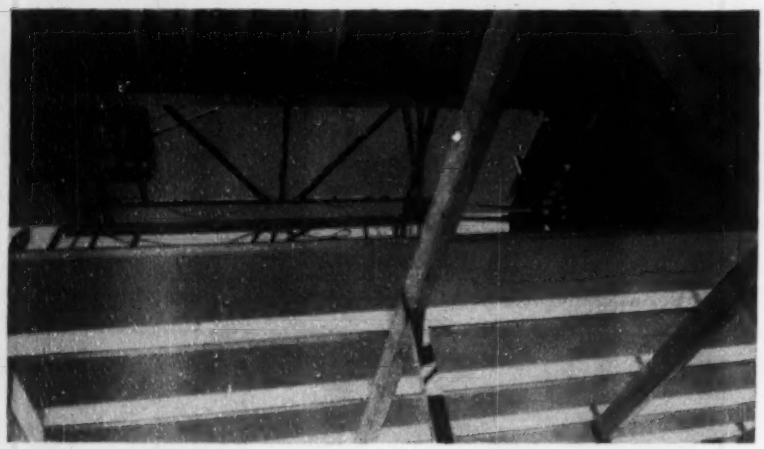


CRANES ERECT columns and girders simultaneously; beam erection follows immediately. Roof-supporting framework becomes rigid assembly as soon as it is in place.



BEAMS AND GIRDERS frame into rubber bumpers at thrust resisting elements around perimeter, to serve as expansion joints.

TRAVELER PLACES ROOF SLABS while riding previously erected beams. Unit is shifted from one bay to another by a crane.



SLABS ARE HANDLED six at a time by many tongues of lifting jig. The 2x9½-ft, 390-lb concrete units are all machine placed.

strap is tied to the beams by tie-wires cast in the beam. Final step is to fill the gap with mortar.

The welded connections make the entire roof slab a rigid diaphragm. And purpose of diaphragm is to make the roof earthquake resistant.

• **Rubber bumpers**—Thrust resistance for earthquake and temperature forces is provided by rubber bumpers inserted around the perimeter of the roof between a thrust girder or thrust wall and the ends of the roof's beams and girders.

The bumpers for the girders are 6x16x4-in. rubber blocks sealed between steel plates. The rubber is specified to be of such consistency that the blocks will deflect 1.50 in. under a 45,000-lb load with a plus allowance of 0.06 in.

The bumpers are precompressed by bolts acting on the steel plates between which the rubber is sandwiched. An allowance of 1⅜ in. was allowed during construction for placing the beams and girders. (These gaps were dry-packed after the bumpers were placed.) After the entire roof was in place, nuts were removed from the bumper assemblies, precompression then permitting the bumpers to expand and follow movement of the roof. If the bumpers have to be removed at some future date, this can be accomplished by tightening the nuts and then slipping the assemblies out.

Leland Reservoir contracts

Excavation	
John Delphia, Patterson, Calif.	$116,264
Drainage and Concrete Lining	
B. Miles Thomas Co and Lawrence Sullivan, San Francisco	208,836
Precast Concrete Roof Members	
P. Grassi and American Terrazzo Co, San Francisco	152,388
Erection of Concrete Roof	
Payne Construction Co, Oakland	92,917
Rubber Bumper Assemblies	
Oliver Tire & Rubber Co, Oakland	4,298
Total	**$574,703**

• **Contracts**—The entire reservoir job was broken down into five contracts (see table). Purpose was to get better prices by having smaller size contracts than if the entire project was lumped in one bid. For example, excavation was separated from the concrete lining. That would permit a contractor specializing in earthmoving to bid on excavation and not be worried about asphalt and concrete work.

Also separated were supplying and installing the precast concrete units.

Alternate bids were taken on 2x9-ft roof slabs including supporting beams as opposed to 4x23-ft roof slabs that span between girders. The smaller sized roof slabs proved cheaper.

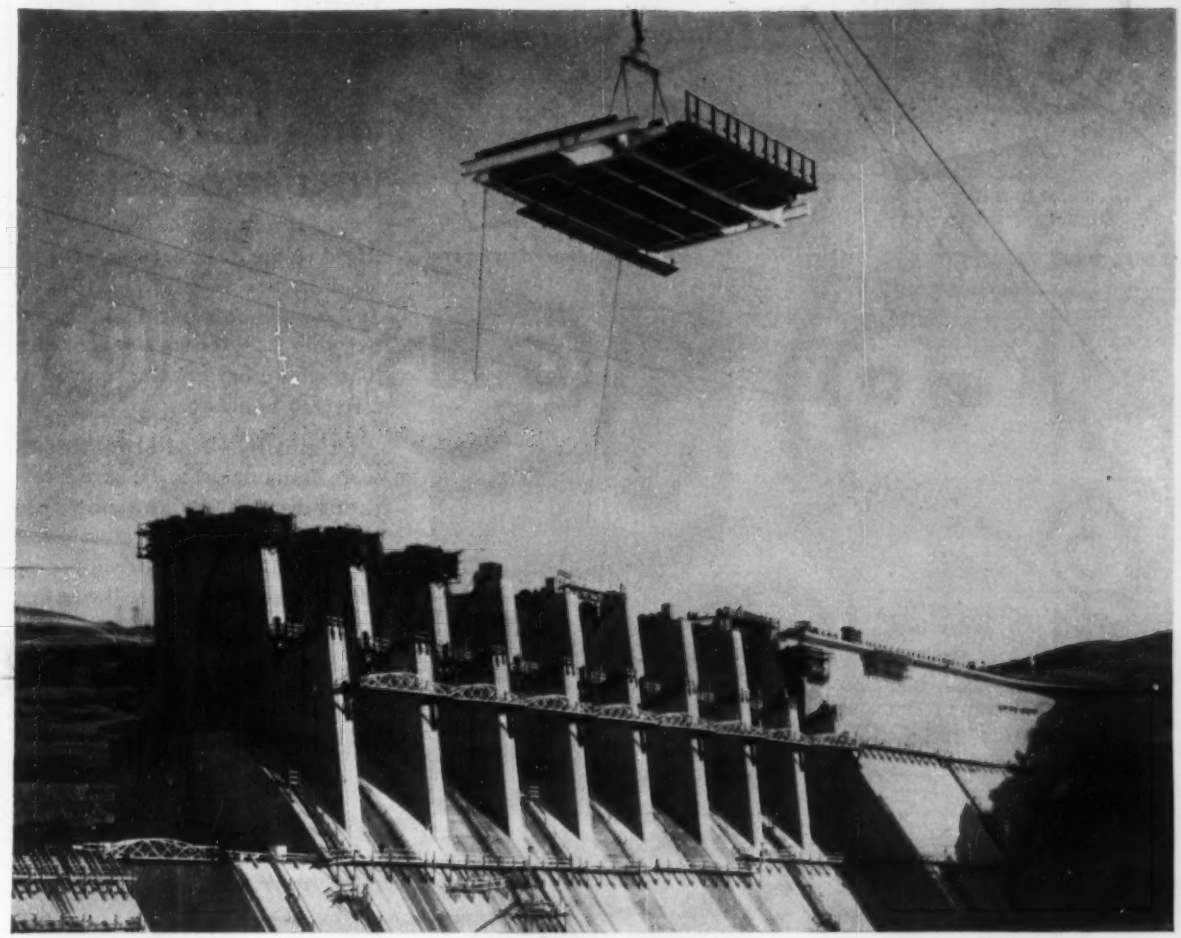
These 2x9-ft slabs were supplied for $9.34 each or $0.464 per sq ft. Installation costs were $2.00 each or $0.10 per sq ft. Total cost of the roof structure was $1.586 per sq ft or $12,104 per mg. The only other precast roof built by EBMUD, the 6½-mg Almond Reservoir, cost $1.572 per sq ft or $16,445 per mg. Design of Almond was almost identical to the design of Leland.

• **Reservoir lining**—The lining at Leland follows practice used on other EBMUD reservoirs. It is underlain with a drain system to carry off any seepage, topped with a 2½-in. layer of coarse gravel (¼ to ¾ in.), and a 4-in. thick stabilized base of asphaltic concrete. (An ordinary highway paving mix is used.)

This base serves as a cushion for the impervious membrane which is next applied. Three coats of a fibrated asphaltic emulsion are sprayed on. A ¼-in. thickness is required on the reservoir bottom and a ⅜-in. thickness on the side slopes.

Final part of the lining is a 4-in. thickness of concrete, the primary function of which is to protect the impervious membrane. The side-slope concrete is reinforced by No. 3 bars on 12-in. centers in both directions.

• **Credits**—R. C. Kennedy is chief engineer of the East Bay Municipal Utility District. Design of the reservoir was under the direction of J. W. Trahern, supervising civil engineer, with design accomplished by Carlos Yerby. Construction is supervised by George Colby with W. Worden as resident engineer.



Placing one of 19 pre-assembled spillway bridge sections at Chief Joseph Dam. Contractors specified that the sections be built largely of Mayari R steel, to keep them light enough for the cableways, and to make them corrosion-resistant.

Mayari R helps engineers keep under 25 ton cableway limit at Chief Joseph

At Chief Joseph Dam, builders took dramatic advantage of the superior strength of Mayari R steel. The dam, to be second only to Grand Coulee with ultimate rating of 1,728,000 kw, is being constructed across the Columbia River near Bridgeport, Wash., by the Corps of Engineers.

The photograph shows one of the 19 pre-assembled spillway bridge sections being lowered into place. Each 49-ft by 30-ft section was welded into a single unit on the ground, then carried to location by cableway.

The cableway carried a maximum load limit of 25 tons. For this reason, the Corps of Engineers specified that the main members of the bridge be built of high-strength, low-alloy steel. Because Mayari R is about 50 pct stronger than structural carbon steel, it could be used in lighter thicknesses. Thus, while providing the necessary strength in the bridge, Mayari R held the weight of the bridge sections well under cableway capacity.

Another advantage which Mayari R brought to Chief Joseph is its resistance to atmospheric corrosion, which is 5 to 6 times greater than that of plain carbon steel. Add to that the fact that Mayari R can be welded and worked as readily as carbon steel, with ordinary equipment and methods, and it's clear that Mayari R was a logical choice for the Chief Joseph bridge.

You may also decide that Mayari R is the logical choice for an upcoming project of your own. You'll want more facts, of course; and you'll find them in the new Catalog 353. Just ask the nearest Bethlehem office for a copy.

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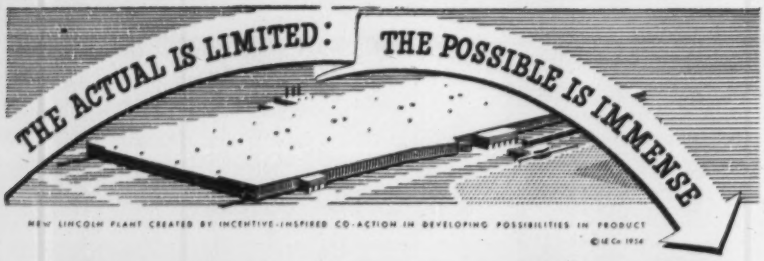
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. . . CUTS STEEL 21% WITH LINCOLN WELDED DESIGN

Rigid frame design, fabricated by welding has saved $41,246 . . . 28% on the cost of this industrial building. 21% less steel was needed than would have been required in a riveted building.

Originally, pitched roof trusses were contemplated. To save fabricating time, a design using continuous girders over column was developed using 30" depth beams of varying weights over the spans.

Of 5 bids submitted, the low bid was $26.00 per ton less for welding than for riveting.

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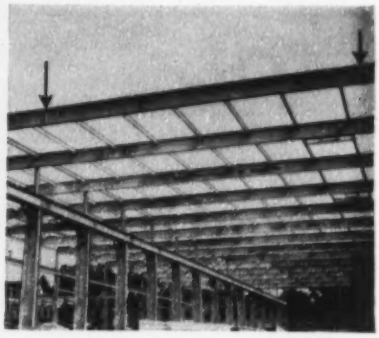

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Bridge salvage

South Carolina re-uses its outmoded steel spans

Replacing old and narrow steel truss highway bridges with new wide spans on South Carolina's main routes is a thrifty operation: the old spans are hauled away for re-use at some new site on a secondary road. For the past five years the state highway department has had great success in the re-use of old steel bridges. To date 30 spans from 18 different locations have been salvaged, and 24 of them were erected, the others stored.

Replaced by wider spans, the old truss bridges are hauled by barge or truck to a new site on some county highway. Estimates are that the use of a renovated span results in savings of about $100 per foot as compared to the cost of a new span.

Biggest job to date was moving—by barge via the Intracoastal Waterway—a 240-ft swing span from the U.S. Route 17 crossing of the Savannah River (ENR July 8, 1954 p. 26) to the Dawhoo River for Route 174.

The old truss spans, usually 18 ft wide between curbs, are re-erected by the highway department's maintenance forces using high tensile steel bolts to replace rivets cut in salvaging the spans. Piers used are generally creosoted piles clustered under reaction points and capped with concrete.

Those spans which could not be shipped by barge along navigable waterways were cut into pieces for hauling by truck and trailer. The steel of all the old spans was thoroughly cleaned and painted after being re-erected at its new site. Creosoted timber laminated flooring with asphalt paving was used for most of the decking on the rejuvenated bridges.

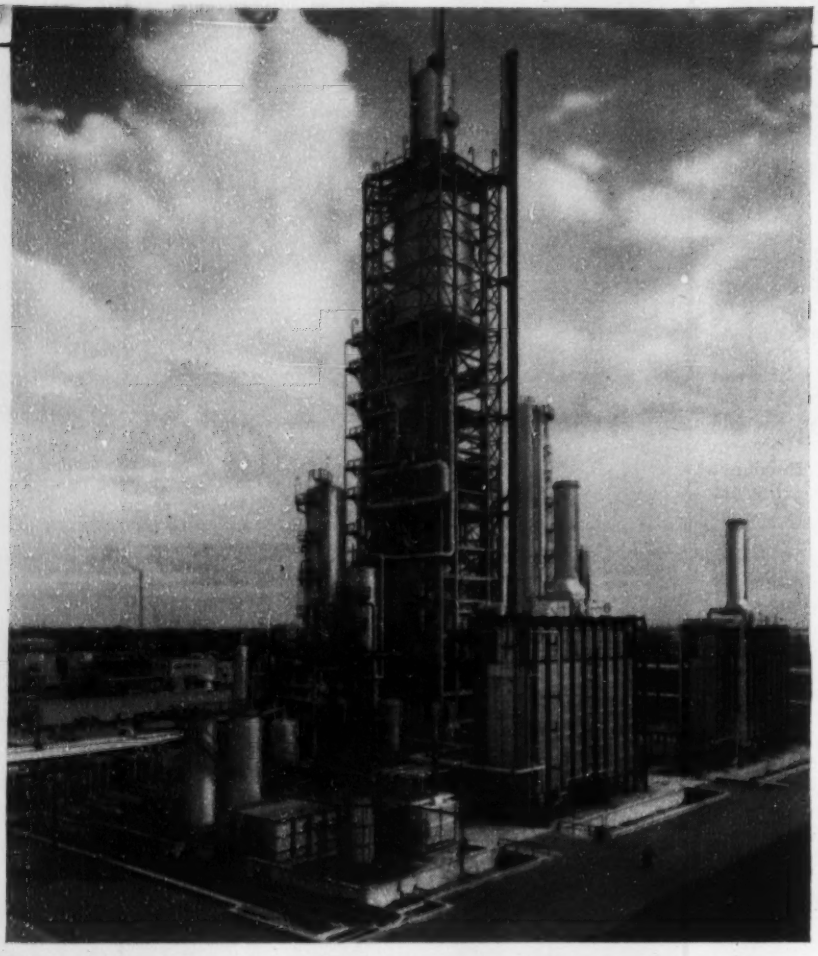
The work was directed by W. J. Gooding, Jr., Bridge Engineer, South Carolina State Highway Department.

OUTMODED Santee River, S. C., swing span, 180 ft long, was removed by floating clear of pivot gear on barges at flood tide. It was replaced by new wider structure.

REPLACING BOAT SERVICE at Brown's Ferry, the old Santee River bridge will be swing span for secondary county road. Span was towed to site via Intracoastal Waterway.

ANTIQUATED Jocassee Bridge across the Whitewater River.

REPLACED by an old approach span from the Santee River.



The new Condor catalytic cracking unit has a capacity of 15,000 barrels per day. The crude unit in the background has a capacity of approximately 45,000 barrels. Condor's new gas plant and compressor building are shown below.

Condor-AT RHO, NEAR MILAN

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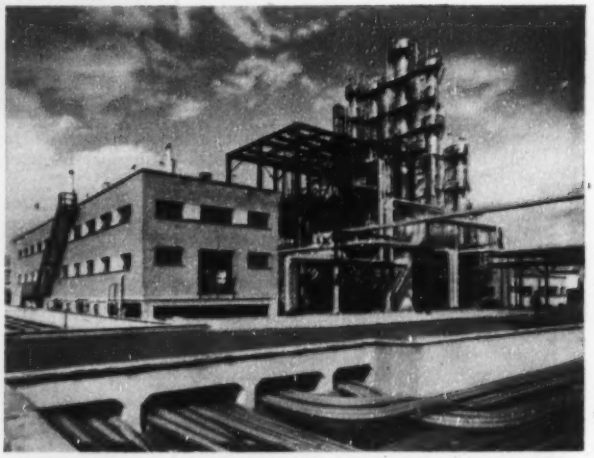

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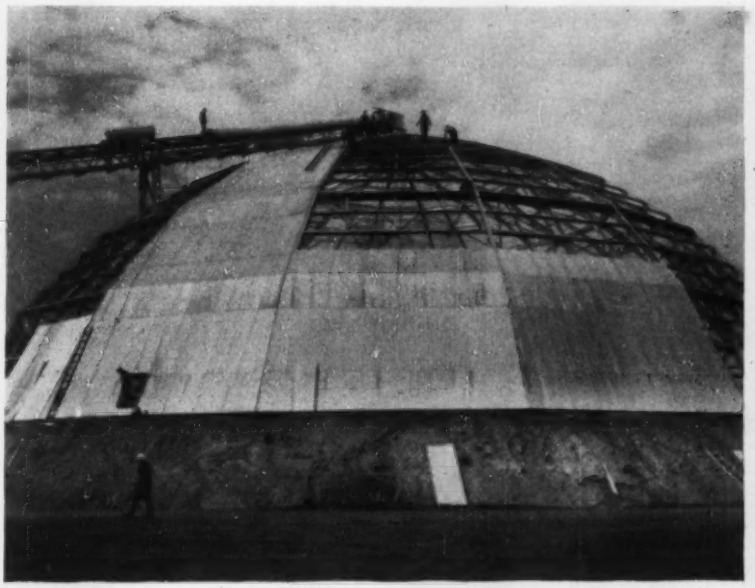


STEEL FRAME and galvanized iron skin forms "umbrella" for 25,000-ton gypsum storage pile at new Seattle, Wash., plant. Wind load controlled design calculations.

Lightweight framed dome

A simple, but effective, framed dome protects raw gypsum storage at the Seattle, Wash., wallboard plant of Kaiser Gypsum Company. The dome is lightweight, serving solely as "umbrella" protection of the powdery material. Use of such a structure in an industrial application is believed new.

Erection of the $100,000 building was simple, requiring only 22 days. Design analysis was complicated because wind load was much more controlling than dead load.

Design requirement was simply this: Provide protection for a 25,000-ton pile of raw gypsum without using columns.

Protection is needed to prevent moisture absorption and prevent creation of a nuisance by the dusty material. And columns would interfere with bulldozer feeding of the belt in a reclaiming tunnel under the building.

Kaiser Engineers, designers of the new facilities, gave consideration to three building types: a simple rectangular bent, a framed cone, and a framed dome. The dome was chosen for its combined advantages of structural strength and economy of materials.

The covered storage building rises 70 ft above yard level. But dome has a rise of only 58½ ft because it rests on a 10-ft high earthen dike that retains the toe of the gypsum storage pile. Building diameter is 175 ft.

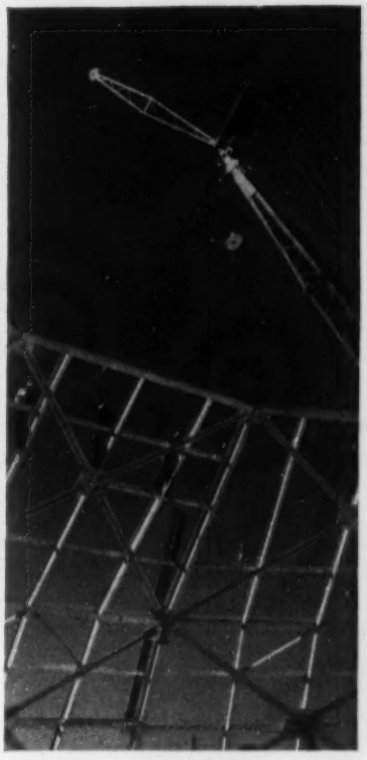
The feed conveyor at the dome top has a rocker support that prevents thrust due to belt tension or other forces on the conveyor structure from being taken by the dome. This support has a welded steel frame designed to distribute the load equally to ribs.

Design of domes—usually massive monumental structures—is generally controlled by dead load. But, due to the light nature of this structure the Seattle Building Department called for an analysis of the structure for wind load. In so doing, the designers assumed that at each panel point the wind load would be a function of the area exposed to the wind and that it would act radially towards the center of the dome. The stresses were determined by graphic statics.

The design features sixteen ribs varying from 12-in. WF 40-lb members at the base to 12-in. WF 27-lb members at the peak. The six rings have a similar size variation. All splices of ribs and rings are welded. A system of angle bracing distributes uneven loading and carries wind load to the foundations.

Each rib rests on a concrete pier supported by four treated timber piles, two battered tangentially and two battered radially. The light dead load of the structure coupled with large wind loads results in tension in these piles. But the subsoil investigation indicated that the piles are able to resist tension. Concrete pier level is at the top of the earth dike that was built after foundation construction.

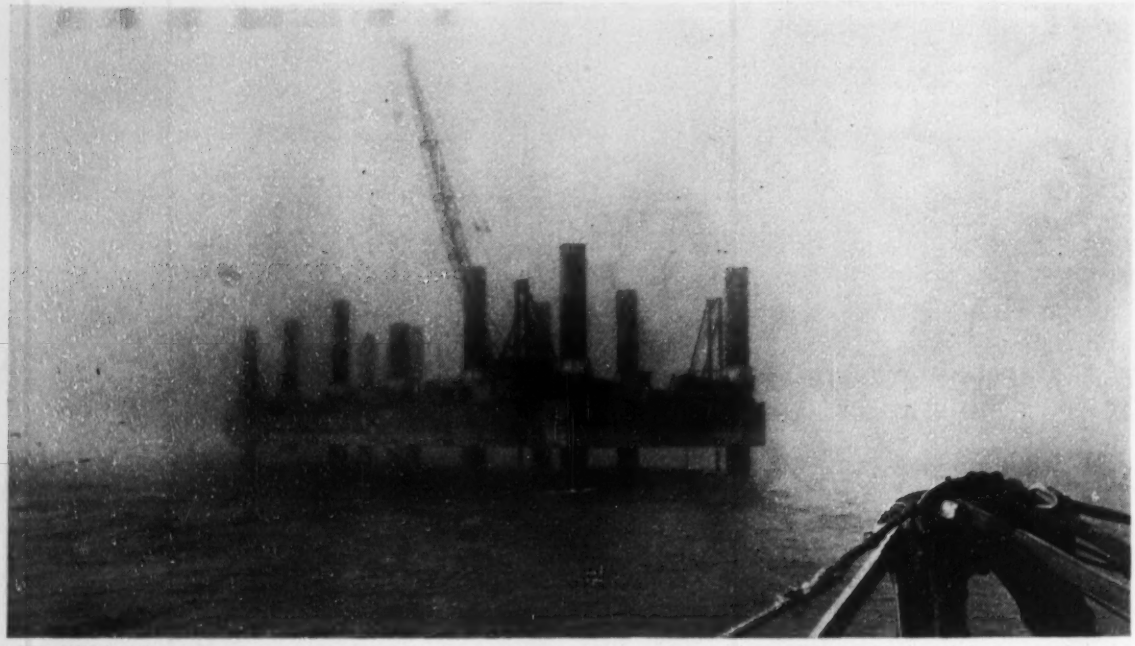
Erection was done in tiers, each tier being made up of sixteen panels. Alternate panels were shop assembled and consisted of two ring members, two rib members, and bracing. Erection of the first tier consisted of placing alternate panels, supporting them with temporary shores to the ground, and then placing connecting ring members between them. Erection of the succeeding tiers was accomplished in a similar manner except that the shop assembled panels were held in place by temporary cantilevers attached to the two ring beams of the preceding tier. With the completion of each tier, a complete structure resulting and no shoring was required.



ERECTION WAS FAST due to simple nature of structure. Only 22 days were required to complete the building.

The entire structure weighs 132 tons which is equivalent to a structural steel weight of 10.7 lb per square foot of projected area.

Design was made by Kaiser Engineers under the direct supervision of Kenneth E. Olsen, principal engineer, in cooperation with Francis B. Tobias, chief design engineer, and George E. Schumann, chief design consulting engineer. Harry J. Bernat was project engineer. The entire program was under the general supervision of Einar T. Larsen, vice president, manager of engineering. Fabrication and erection of structural steel was by Isaacson Iron Works, Seattle, Wash., subcontractor to J. C. Boespflug Construction Co., general contractor.



ACID TEST of barge-dock normally used for wharfage in isolated places was its service as a drilling platform at four successive open-ocean sites. This is fogbound third site.

Had to beat the hurricanes—

Sea-going drillers get radar platform data

Robert H. Dodds
Associate Editor

This month, design for the unprecedented "Texas Towers"—offshore platforms in the Atlantic for the radar defense network—is expected to be announced. No matter what type of structure has been chosen, the project will be a daring one—pioneer construction in the hitherto unconquered open ocean.

But some of the pioneering already has been done as part of the preliminaries for the big project. Design for the radar platform is based on site investigations made last summer with the aid of a self-jacking barge-dock. This is the type of structure that has become an effective tool for quick erection of wharfage in out-of-the-way places. (ENR May 29, 1952, p. 44).

Although the docks had been used for oil drilling platforms in the Gulf of Mexico, this was the first time one worked in the open ocean. It was an expensive ($300,000) but necessary means for getting foundation data adequate for the design of hurricane-proof permanent platforms.

Ocean-bottom borings were made from the platform at four successive sites, located as far as 100 miles off Cape Cod.

Aside from its originality, the operation was notable on two counts: The speed with which it was organized and executed; and the acid test it gave the barge-dock.

• **Fast job**—Talks among the interested parties began June 10. Barge caissons were lowered at the first offshore site July 16, and by Aug. 10 the outfit was safely back in port.

All three branches of the Defense Department were in on the job. First, the Air Force had ordered the work done under its appropriations. Navy's Bureau of Yards and Docks handled the boring contract through its First Naval District Public Works Office at Boston, and the U. S. Army Corps of Engineers supplied the barge-dock, which normally is used for training at Fort Belvoir, Va.

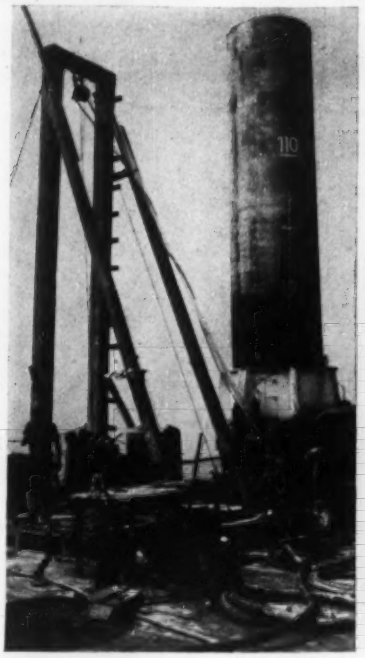
Boring contractor was a joint venture of Raymond Concrete Pile Co. and DeLong Engineering Co., both of New York. Advice on site location, ocean currents and weather was provided by Woods Hole Oceanographic Institution, at Woods Hole, Mass. Moran, Proctor, Mueser and Rutledge, New York consultants, represented the Air Force on the job, and is designing the permanent structures.

The 60x250-ft barge-dock was towed by inland waterway from Fort Belvoir to Perth Amboy, N. J., where four drill rigs, other machines and subsistence facilities were put aboard. The next stop was Brooklyn Naval Shipyard, where the barge's standard 100-ft caissons (6 ft dia) were extended to 120 ft. Then the outfit, with 50 men living aboard, was towed to the first site 100 miles off Cape Cod.

Each site investigation took about 4 days—3 days of drilling, 5 or 6 hours each for setting-up and re-floating, and remainder moving to the next location.

One reason for haste in getting the job done was the danger of hurricanes in the latter part of the summer. Records showed that the earliest hurricane in the past 40 years had occurred Aug. 10, so this became the deadline for completion.

• **The acid test**—Even so, the barge-dock did not get off scot-free. When ENGINEERING NEWS-RECORD visited drilling operations at the third site it was noted that one of the 12 caissons was not in service. It was learned that this one had bent during a previous re-floating. Further jacking upward would have jammed it in its well, so it was cut away at barge-deck level. Loss of the one caisson did not prevent further operations of the platform, however, and the contractors went on to complete their assignment.



NEW EQUIPMENT was the rule, because the job couldn't chance breakdowns.

MAIN STREET on the 250-ft-long platform was lined with mess hall, bunk house, shop and office. Crane for handling caissons was the only traffic. (ENR photos)

• **Re-floating is critical**—It is apparent that re-floating is the critical point in open-water barge-dock operation. Setting-up is easier on the structure, being accomplished by almost simultaneous free fall of the caissons through the wells, while the barge is still floating. In this case anchorage of all legs can take place practically at once, and heavy wave and current forces can be resisted by the whole structure until the barge is jacked free of the water. When the barge is out of water, of course the lateral forces lessen drastically.

On the other hand, during re-floating the caissons must be jacked at a relatively slow rate, lowering the barge into the water and then withdrawing the legs from the bottom. Although the caissons all rise together after the barge is floated, it is reasonable to assume that frequently one caisson will be last to come free from the bottom. When this caisson alone is resisting the lateral forces a sufficient stress will bend it, making it inoperative.

Evidently open-ocean action had been strong enough to cause the failure observed.

Actually, the sites chosen are protected from the brunt of open-ocean wave action. They are in shoal water 40 to 60 ft deep, a short distance landward from still shallower ridges over which big waves break, much as they do at ocean beaches. Behind the breakers it is relatively calm, although strong currents run continuously.

• **Fine sand prevails**—Woods Hole scientists had expected the ocean floor at these shoals to be glacial till composed of sand, gravel and boulders. Instead, the borings brought up fine, compact beach sand to depths of 150 ft. A variation at one site was a deep stratum of gray silt with fine sand, underlying about 60 ft of the beach sand. The drilling crews, all experienced Raymond Concrete Pile Co. men, were equipped to handle any kind of bottom material, for the most part using casings downward to firm material and bentonite drilling mud thereafter.

Nothing but new equipment was taken along because no chance could be taken on breakdowns. The hazards of boat-to-barge transfer limited supply from land mostly to fresh provisions, mail and occasional personnel. For this shore contact the contractors chartered a trawler, which made one or two trips weekly to the barge. Goods were packed in cargo nets and picked off trawler's deck by the barge's crane. People ordinarily were transferred in one of the trawler's dories. When they reached the barge they scrambled onto a gangway with the help of two men already crouched there. In some cases men went aboard the barge in the cargo net.

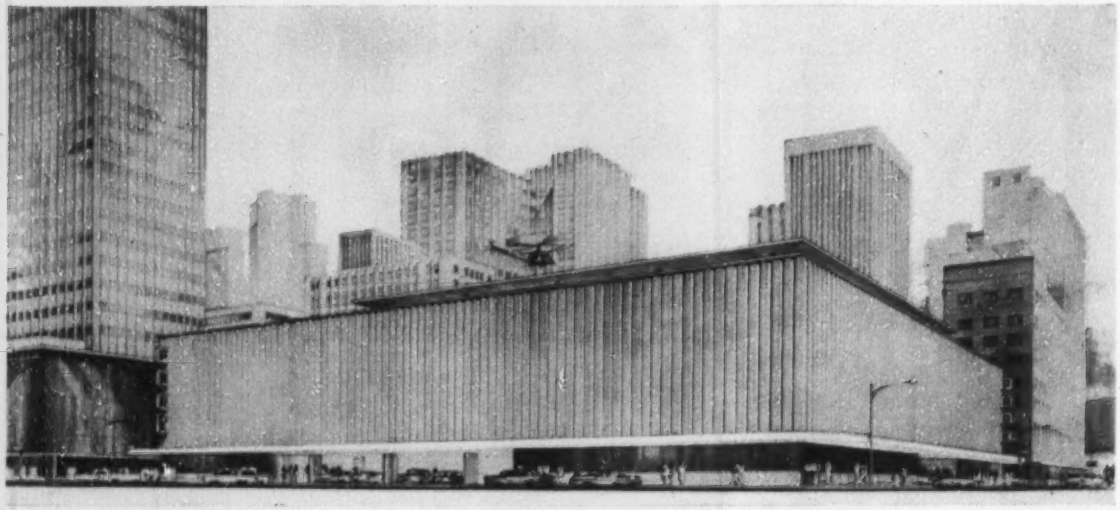
Regular communication with shore was maintained by radio. Radar on the barge towboat, hove-to nearby, was useful in many ways. There also was television aboard, for off-duty moments.

About 50 men lived aboard the barge. These included two three-man crews for each of the four drill rigs (for round-the-clock work), 3 riggers, 3 mechanics, 3 machinery operators, one oiler, subsistence personnel and representatives of all interested parties.

• **Management**—On the barge-dock, Charles Erskine of Raymond was drilling superintendent, aided by Warren Rasmussen. George Bauer, of DeLong, (the DeLong company built the barge for the Army) was in charge of barge operation, assisted by Robert J. Green. Ens. M. P. Rowland represented the First Naval District Public Works Office, and M. Sgt. W. H. Witsman accompanied the barge from Ft. Belvoir. Inspectors for Moran, Proctor, Mueser and Rutledge were Elmer Richards and Lou Capozzoli.

Woods Hole Oceanographic Institution men connected with the project included Columbus Iselin, Jack Ziegler, and Richard Edwards. Headquarters managers were Gordon Fletcher for Raymond and George Tate for DeLong.

The part played by the Oceanographic Institution men, incidentally began some time before the barge arrived at the sites. Working from an institution boat, at least two of these men went to the bottom wearing diving helmets. There, they groped their way through a thick mat of kelp to hand-pick samples of the soil.



Garage with aluminum-plastic skin: car service area—maybe even heliport

A new downtown parking garage, one of the largest car parking facilities in the South, will be constructed for the Tennessee Gas Transmission Company near the heart of Houston, Tex.

The building, located on 55,000 sq ft, will cover most of a block and will add 10 acres to Houston's downtown off-street parking space.

An average of 2,500 autos per day will be accommodated in the 8-level structure.

Bids will be taken and a contract let in December, with construction scheduled to start in January, 1955. Completion is set for late in 1955.

A heliport is under study as a possible addition to the roof design. Also featured are pedestrian walkways under two streets; air-conditioned, well lighted, served by escalators and lined with window displays.

One will be under McKinney Ave., connecting the garage with the Second National Bank, and the second will pass beneath Travis St., between the Bank building and the Commerce Building. A concourse under the bank building will connect both tunnels, making it possible for a motorist to park his car and walk to his destination out of reach of both weather and surface congestion.

Escalators will link the garage with the tunnels, and all levels of the garage will be served by high-speed, automatic elevators.

Two levels will be underground, with a portion of the sub-basement set aside for auto servicing. Above street grade will be six parking levels, including the roof, with 10,000 sq ft of the ground floor available for stores or other commercial uses.

The frame of the structure will be reinforced concrete and floor designs are conventional.

Exterior design treatment, however, calls for aluminum panels two feet wide that will rise four stories from the sidewalk canopy to the roof. These will alternate with and overlap panels of white translucent plastic, baffled so as to allow free circulation of air but furnishing protection against rain, dust, heat and direct sunlight.

The entire structure has been designed and laid out on the basis of 100% free aisle space with allowance of 8.5 ft average width per car stall. This layout, it is claimed, will encourage self-parking.

Air-conditioned waiting areas will be provided for parkers using attendant service, and the garage will be equipped with inter-communication facilities and pneumatic tube systems for rapid service.

• **Both contract and short-term parkers**—Parking will be split about fifty-fifty between all-day contact parkers and the drop-in trade. The former will have the option of attendant or self-service operation, but it is believed that at least two-thirds will choose to park their own cars.

Drivers will be able to leave the garage on any of the four streets that bound the building, and enter it from any of three streets. Facilitating plans for traffic flow is the advantage of one-way traffic movement on all four boundary streets. Street traffic capacities are said to be sufficient to absorb traffic flow from the garage at all exits even during peak hours.

To give the most efficient flow of traffic at no loss of safety, a system of traffic controls will be installed in the garage.

Plans for the internal traffic and parking design were prepared by Thomas E. Willier, traffic and business consultant retained for the project.

Using a recently-completed "Houston Origin and Destination Survey", and a "Central Business District Parking Survey" together with inventories of parkers in existing Houston garages, Willier determined the respective areas of residence of the monthly contract parkers and short-time parkers who are expected to use the facility. He plotted their probable routes of travel, and times of movements of their cars into and out of the garages.

Armed with this information Willier and his associates have worked out the traffic design and operational plans to be put in effect when operation begins.

The firm of H. E. Bovay, Houston consulting engineers, was retained to do structural design and prepare plans based upon the traffic studies.

Working with Bovay on architectural treatment and design are Cowell and Neuhaus, architects.

(*Municipal continued on page 45*)

FIRE PROTECTION NEWS!

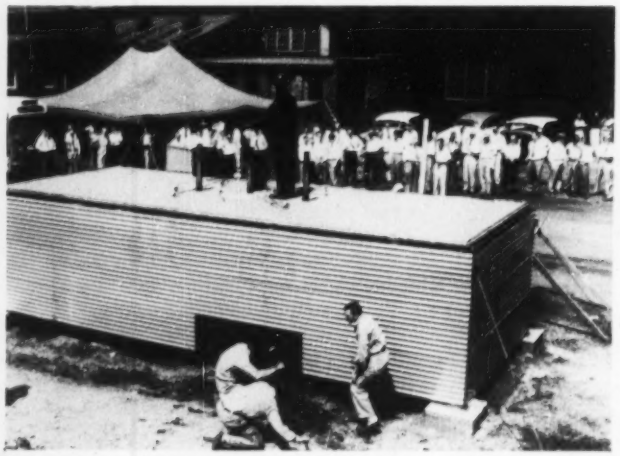
seared for 45 minutes at temperatures up to 1720° (F.)

this new industrial roof didn't burn! didn't feed the flames! didn't fall!

Immediately below the roof in this photo, rages a high-intensity fire, producing heat equivalent to 240 residence-sized gas furnaces operating at full capacity . . . or more than 24 million BTU's in 45 minutes! Last year, similar fires dealt losses of at least $250,000 to *each of* 105 manufacturing plants! Note, however, that the roof proves to be completely incombustible and remains intact! *Now, you can have this same fire protection for all of your buildings!* See following pages . . .

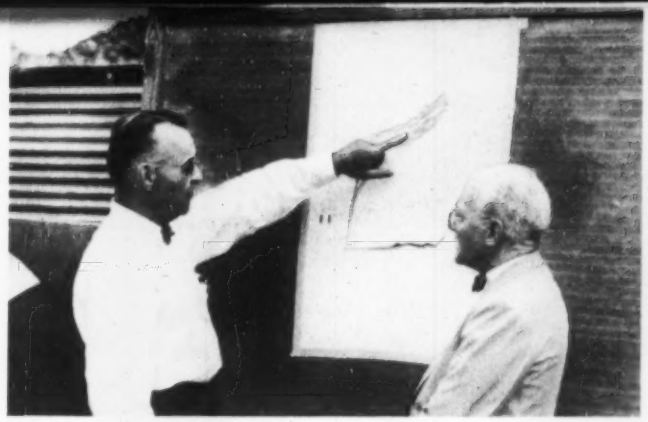
Rugged fire test proves safety of Tufcor Metal Roof Deck with Cast-in-Place Insulating Slab

On June 9, 1954, more than 100 U. S. architects, engineers, contractors, roofing manufacturers and insurance men met at Granite City Steel Co., Granite City, Ill. to witness the fire test of a new steel and concrete roof. Designed to prevent the spread of fires, the roof is made of Tufcor galvanized corrugated steel sheets topped by lightweight, insulating concrete.



1. LIGHTING THE FIRE. Test structure represented one 25 ft. bay in a multi-bay structure. Roof support consisted of 10 WF21 main framing beams supporting 11.8 pound junior beams at 6′ 3″ spacing. To concentrate maximum heat in center bays, fire was produced by 24 gas burners located on either side of center support beam. Mica windows on side walls of heated bays aided visual observation.

2. INSIDE TEMPERATURE SKYROCKETS to about 1000° in 5 minutes . . . 1300° in 10 minutes . . . 1550° in 30 minutes! Although test was conducted in open sun on a blistering day, average roof-top temperature reached only 200° . . . a mere 60° above the temperature a black roof will reach through solar heat, alone! Tremendous differential between inside and roof-top temperature was maintained by just 2½″ of insulating fill! A life-size manikin remained on top the roof throughout the test to vividly show insulating properties of the roof. Sixteen thermocouples measured temperatures inside the structure and on top of the Tufcor, cement, and built-up roof. White haze at roof top came from vaporization of zinc coating on side sheets.

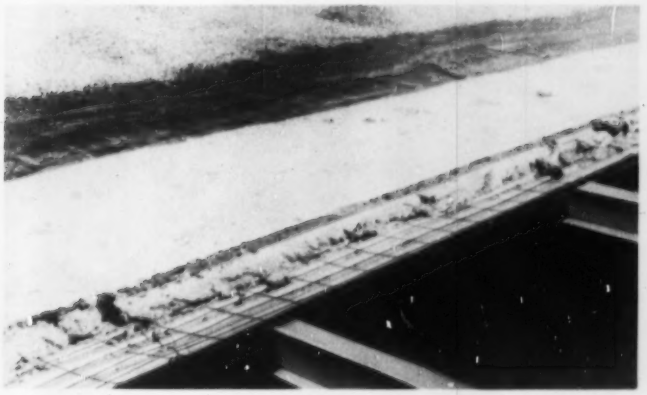


3. **CAREFULLY CONTROLLED TEST** follows ASTM specification E119-50, which requires temperature to reach 1630° in 45 minutes. Analyzing industrial fires in 1953, one national report stated "95% of losses occurred in partially combustible structures." National Fire Protection Association found "Only 3 of (major) losses occurred in fire resistant buildings."

4. **COLD STREAM OF WATER,** played on the white hot underside of the Tufcor deck, (after 45 minutes) simulates force of fire-fighting efforts. Billowing steam clouds and Pyrometer readings taken 5 minutes after flames were extinguished showed jarring suddenness of temperature drop and ability of Tufcor to absorb *extremes* and *rapid changes* in temperature.

5. **RESULT:** Close observation of structure both during and after the 45-minute test proved that flames had not spread along the underside of the roof, that the roof had neither smoked nor propagated fire! Although extreme heat had completely warped corrugated side walls, the asphalt gravel roof had not blistered or burned—was still intact. Retention of roof strength, after test, was proved by 160-lb. man who climbed atop the test structure, jumped on the roof at mid-span, posed beside 190-lb. manikin. Deck was still able to carry full design live load.

6. **LOAD TESTS** show the tremendous *strength* of a roof slab similar to that used in the fire test. After ½ million cycles of repeated loading, from zero to full design live load, the slab was loaded until it finally failed at 273 psf of 8.9 *x design live load!* Based on 30 psf live load, the ultimate factor of safety of the Tufcor roof slab is 9.0. (See Pittsburgh Testing Laboratory Test No. 282-T-403.)

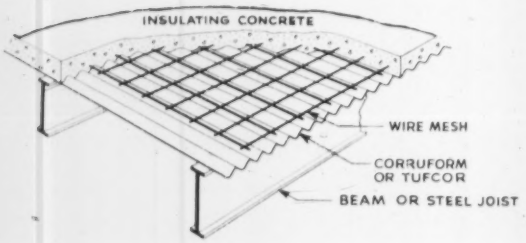


7. **SIMPLICITY AND ECONOMY** of construction are primary advantages of this Tufcor and concrete slab. All elements of cost are shown here: hot-dip galvanized steel deck, wire mesh and insulating concrete fill. Recent bids show this superior deck can be used at a cost comparable to ordinary painted metal roof deck with insulation board, or other types of slabs on bulb-tees or purlins. FOR BUILDING INSTRUCTIONS, SEE NEXT PAGE!

FIRE PROTECTION NEWS!

fire-resistant roofs are easy, economical to build

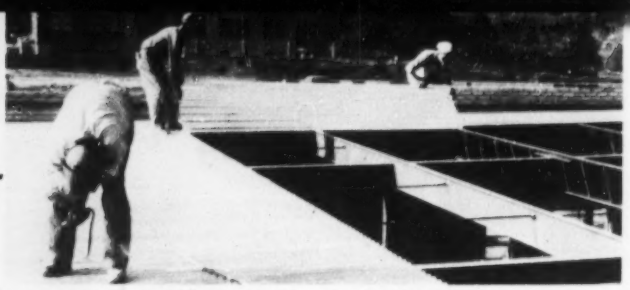
...and Granco offers three ideal deckings for cast-in-place slabs!...



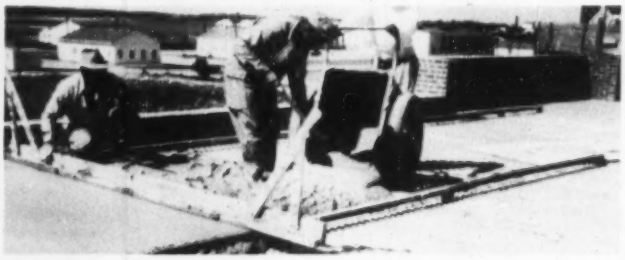
Standard Corruform, Heavy-Duty Corruform, and Tufcor—*all* non-combustible, *all* stronger than ordinary steel of the same gauge! When welded to purlins, these Granco tough-temper panels form a *HIGH-STRENGTH* steel deck over the building, tying roof members into a single strong plate. Lightweight deck also permits designer to use maximum *ECONOMY* in framing since total dead load of steel sheets and concrete is less than 7 psf! Most important, Granco steel sheets are hot-dip galvanized to offer greater *PERMANENCE* than ordinary painted metal deck! This permanence combined with long life of concrete results in a far superior roof system. Over 10,000,000 sq. ft. of Granco roofs already in service! For more information, write for FREE Engineering Data Section SFg-546, Dept. AF-D, GRANCO STEEL PRODUCTS CO.

Write today
Also . . . see our catalog in Sweets

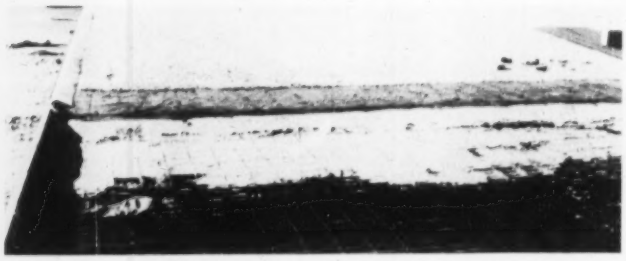
see our catalog in S or write for copy



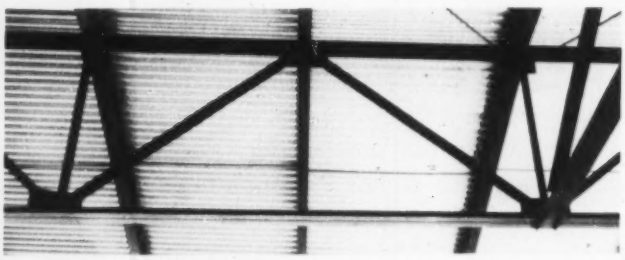
STEEL SHEETS ARE QUICKLY PLACED AND SECURED by welding or by clips attached to top of joist. Attachment of sheets makes roof rigid, provides working platform. Special Granco tough-temper steel takes construction abuse—adds safety factor.



CONCRETE FILL IS PLACED over welded-in-place deck and steel mesh. This insulating slab weighs only 5 lbs. psf for a 2½" average depth. (Insulation value equivalent to 1" of insulating board.)



BUILT-UP ROOF IS APPLIED after slab has cured 8-10 days. Rigidity of slab gives strength, long life to roof. Built-up roof is protected from fire by the insulating layer of concrete.



ATTRACTIVE UNDERSIDE. The bright galvanized surface of Tufcor and Corruform gives lasting protection to steel; affords excellent light reflection when left exposed—however any normal ceiling treatment may be applied.

GRANCO
STEEL PRODUCTS COMPANY
Subsidiary of
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GRANITE CITY, ILLINOIS
DISTRIBUTORS IN PRINCIPAL CITIES

Tough anti-pollution policy adopted despite risk of discouraging industry

At the risk of discouraging at least one proposed industrial development, California's Central Valley Regional Control Board has adopted a strict anti-pollution policy for the Sacramento River.

The board, meeting in Sacramento, approved standards for the length of the river and a set of waste discharge rules with which the Ecusta Paper Corp. must abide if it goes through with plans for a cellophane plant on the river near Red Bluff, some 150 mi. upstream from California's capital city (ENR, Aug. 5, p. 46).

Ecusta, a subsidiary of Olin Industries, had no official representation at the hearing. Therefore, no immediate announcement was forthcoming on whether the firm would go ahead with its plant at Red Bluff. Some feeling was expressed that the standards set by the board would be too restrictive for economical discharge of Ecusta chemicals into the river.

The company, in a long letter to the board, had insisted that the regulations as proposed and essentially adopted by the board were too restrictive. But the letter gave no hint as to the company's plans if no changes were made in the policy. The firm is known to be considering sites for a plant in Oregon and in Washington State.

One engineer close to the picture said he did not want to be quoted in his official capacity, but it looked to him like the waste discharge regulations would steer Ecusta away from the California site unless a plan could be worked out to install economical waste treatment facilities at the plant.

The city, which draws its water from the Sacramento River voiced strong objections to the Ecusta plans and favored the resolutions as finally adopted.

• **Strong language**—The general resolution demands that river waters:

1) Shall not have a sulphate concentration in excess of 4 ppm over the maximum observed (40 ppm) sulphate concentration present in the river at the sampling station at Sacramento.

2) Shall not have a chloride concentration in excess of 4 ppm over the present chloride concentration. The maximum noted to date is 20 ppm.

3) Shall not have a sodium concentration in excess of four ppm over present sodium concentrates. The maximum observed to date is 25 ppm.

4) Shall not have a hardness concentration in excess of four ppm (MOTD 92 ppm).

5) Shall not have a total solids concentration in excess of 25 ppm (MOTD 176 ppm).

6) The river at no point shall have a dissolved oxygen concentration of less than 85% saturation.

7) The waters of the Sacramento River at all points shall be bacteriologically safe for its present uses.

8) The waters of the Sacramento River shall be free of grease slicks, discoloration and floating solids of sewage or waste origin.

9) The river shall have no substances discharged to it of such character or quantity as to be injurious to humans, plant, animal, fish or aquatic life.

10) The river shall have no substances discharged to it of such character or quantity as to be injurious for irrigation use.

11) The river shall not have sludge of sewage or waste origin either on its bottom or banks.

12) The river shall receive no waste discharges that will cause objectionable discoloration.

13) Water discharges shall not raise the temperature of the river more than 0.5 deg F. at any point.

14) Waste discharges shall not cause the PH of the river to fall below 6.5 nor rise above 8.5 at any point except that not more than 10% of the samples shall be below seven and not more than 10% of the samples above eight.

The resolution specifically affecting the proposed cellophane plant goes into detail on the exact quantities of chemicals that could be dumped into the river.

It sets up alternative requirements if the Ecusta firm locates its plant above the proposed Red Bluff diversion dam, the headworks of the Cen-

(*Continued on page 46*)

Single light poles have a double duty

Approach roadways to Seattle's new Battery Street subway posed an unusual lighting problem: How to use single light poles to illuminate both the down-graded approaches and the normal surface roadway adjacent to the approaches. Normal spacing of poles would have resulted in a diminishing surface illumination as the road grade increased the distance from lighting fixture to pavement. But by varying the spacing of pole installations, engineers were able to maintain necessary illumination on the lower road—and more than ample lighting for the upper road.

Poles farthest from the subway entrance are spaced at 102 ft. Then spacing gradually decreases from 90, 75, 60 and 50 ft down to 40 ft nearest the entrance, where the subway roadway is 16 ft lower than the surface road. Of the 14 pole installations, all except the four nearest the entrance use double fixtures (mounted at a height of 30 ft) in order to light both top and approach roadways from the same pole.

7 reasons for 2-way radio

★ Control field operations
★ Save time
★ Increase efficiency
★ Cut idle time
★ Expedite and improve customer service
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2-WAY MOBILE RADIO

FREQUENCY STABILITY & SELECTIVITY
guaranteed for life!

every reason for G-E!

● The importance of 2-way radio to you *for any reason* is actually a point in favor of selecting General Electric equipment! Radio saves you money. Don't lose this money on an expensive-to-maintain communication system. Buy G-E! Its reputation for low cost maintenance requirements is widely respected throughout your industry! And, radio must perform on-the-job *at all times.* When it fails, your profit takes a beating! Superior G-E design . . . G-E components are profit insurance . . . an effective guarantee of dependable performance. Select 2-way radio equipment carefully and know why General Electric is preferred by leading companies in your business.

SEND FOR FREE INFORMATION!

General Electric Company, Section X22104-14
Electronics Park, Syracuse, New York

Please send bulletin ECR-47 showing how General Electric 2-way radio can aid me in the construction business!

NAME..... COMPANY.....

ADDRESS.....

CITY..... STATE.....

GENERAL ELECTRIC

tral Valley Project's Sacramento Valley canals.

The resolution also says that if there is any future change in the conditions or use of the river it may be necessary for the board to revise the requirements.

This would place the company in a position of possibly having to change its discharges at any time in the future if the board so ruled.

New redevelopment project to replace wartime housing

The Marin County, Calif., Board of Supervisors has approved a $10-million private redevelopment scheme for Marin City and Hilarita, two wartime housing projects near Sausalito. Under the plan, low-cost housing will be provided for some 6,000 persons.

The Board also authorized the county's housing authority to start negotiations with Hal B. Hayes, North Hollywood builder, to buy the land, which is now owned by the federal government. Transfer of land is expected to be completed by February, 1955, the deadline that has been set by the government for the county to come up with a permanent plan for the area.

Marin City and Hilarita, now operated by the housing authority, were built at the start of World War II as temporary quarters for out-of-state workers who flocked to the county for shipyard jobs. Marin City's frame apartments, scattered over the hillsides, had a life expectancy of five years, but still shelter 1,100 families. Hilarita houses 120 families.

Pittsburgh gets its first river-rail-truck terminal

Pittsburgh, long a key port in the U. S.'s 28,000-mi inland waterway system, is scheduled to open its first integrated river-rail-truck terminal.

A contract recently signed by Union Barge Line Corp. and McKees Rocks Industrial Enterprises will turn a 103-acre site along the Ohio River, 3½ mi below Pittsburgh, into a terminal for barges, railroad cars and motor trucks.

The new terminal will include these features:

- ½ mi of Ohio River frontage
- 1,800,000 sq ft of covered storage space
- 40,000 sq ft of office space
- 30 acres of open storage space served by cranes and railroad siding
- 13½ mi of railroad tracks and a complete terminal railroad. (The Pittsburgh, Allegheny & McKees Rocks Railroad, a subsidiary of McKees

Rocks Industrial Enterprises, will serve the terminal.)

• Parking facilities for motor freight carriers.

The site of the terminal was acquired in 1950 by the McKees company. Since then it has been used as a warehouse, leasing storage space to the U. S. Air Force and private companies.

The river harbor adjoining the property already has been dredged and necessary equipment has been provided to facilitate direct transfer of materials between carriers. Future improvements will be made and docks extended as the need arises.

Pittsburgh now has 128 waterfront terminals, but nearly all of them are private or of a specialized nature. The fact that the biggest users of waterway transportation in the area—steel and coal companies—operate their own docks and terminals is one of the main reasons why the city has not had an integrated terminal until now. (For story of terminal construction along inland waterways see ENR, Aug. 5, 1954, p. 34.)

Municipal briefs . . .

• **Sewer bonds on the ballot**—A $14.8-million bond issue to finance construction of the Westchester County, N. Y., proposed sewage treatment plant at South Yonkers will go before voters in November. Two years ago the Interstate Sanitary Commission declared that the county's present plants were obsolete and ordered replacement to start by December, 1956.

• **Flood plan progress**—Work on the Licking River section of the Covington, Ohio, flood protection program will be completed by January, 1955. The entire program for the city is expected to cost over $8 million.

• **Pipe line bonds approved**—In Green Bay, Wis., a referendum vote approved issuance of $5.7-million in bonds against the city's water department to finance a new pipe line to Lake Michigan. Last spring voters turned down a similar plan by a narrow margin.

• **Teamwork is cheaper**—A detailed study on sewage treatment plants indicates that New York's Triple Cities area—Binghamton, Johnson City and Endicott—will find it cheaper to team up on future sewage problems. The study was made by the Binghamton engineering firm of William H. McFarland.

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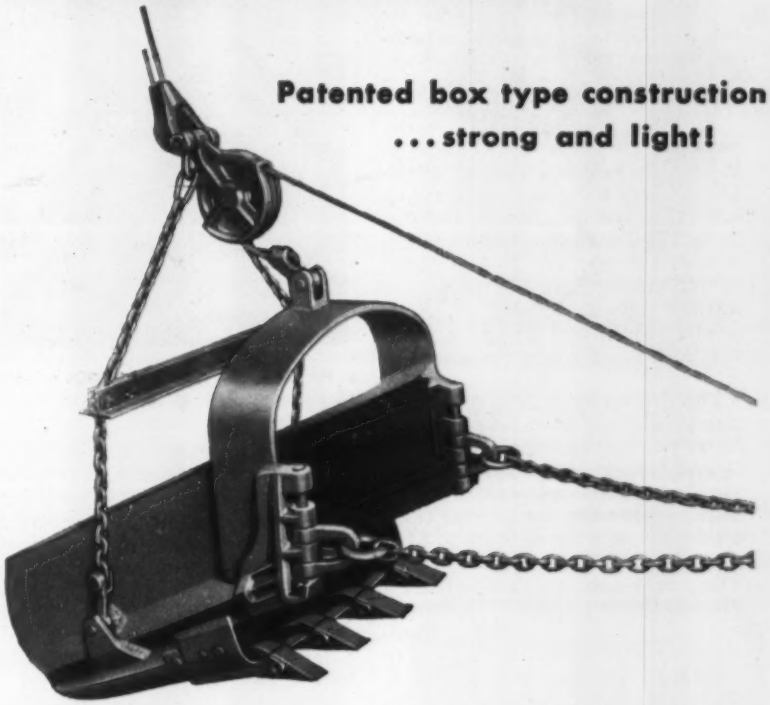

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Soviet hydro

Volga River, lifeline of Russian commerce, also is its key power source

Russia, racing against the West for industrial capacity and output, is pushing hydroelectric development of the Volga River, its best single river for supplying immediate power needs.

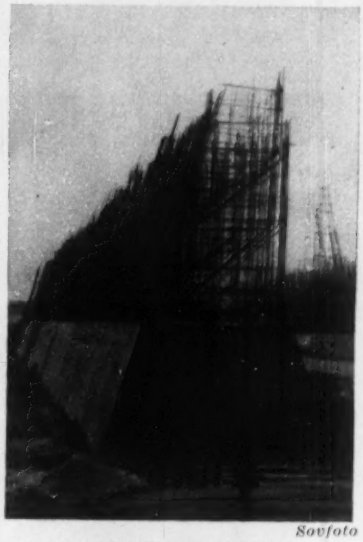
According to an article in the Soviet periodical "Culture & Explanation Work", the installed capacity of the whole Volga River system (including tributaries) will be about 17,000,000 kw in 1956. Interestingly enough this capacity will represent 75% of all Soviet generating capacity (the present installed capacity of the U. S. is around 115,000,000 kw and it might well double in the next ten years).

• **The river**—Almost 25% of Russia's population lives in the Volga River basin. The 2,300-mile river rises northwest of Moscow at the northern tip of the Central Russian Uplands. It then flows in a twisting but generally eastward direction, running north of Moscow, for about a thousand miles. Then, at Kazan, the Volga takes a sharp turn southward and flows broad and sluggish past Kuibyshev, southwest to Saratov, southerly again to Stalingrad, and then southeasterly to debouch in a wide marshy delta on the Caspian Sea.

Three power plants are working at present on the river: the Ivankovo plant (built in 1937), the Uglitsh Plant (finished 1940), and the Stsherbakov Plant (1941). Construction is under way or about to start on four more big hydro projects: Gorki, Tsherboksary, Kubitshev, and Stalingrad. The last is to be the largest plant on the Volga.

The river's average flow is around 250,000 cfs (about half the flow of the Mississippi). The most important processing industries in Russia are located on the river, along with 80 important cities. Almost 50% of all goods transported on Soviet waterways use the Volga or its tributaries.

The dam at Stsherbakov backs up Russia's biggest reservoir: 20,000,000 acre-ft (Hoover Dam on the Colorado River backs up a reservoir of 31,000,000 acre-ft). The hydro project at the Stalingrad site will be Russia's biggest: the dam will be earth fill and the installed capacity may ultimately be around 2,000,000 kw, the size of Grand Coulee Dam on the Columbia river in Washington. The river behind the dam will rise some 85 ft and a series of locks and ship canals will permit navigation around the structure. All the major dams on the Volga have (and will have) provisions for navigation. Increased shipping is expected on the river upon completion of all the dams, since the water level will be maintained at a relatively constant level throughout the year.



Sovfoto

LOWER SHIPPING LOCK of the Kuibyshev project on the Volga.

The article in the Soviet publication claims that upon completion of the system about 32,000,000 acres of land will be served by irrigation.

Flood proves efficiency of Vienna sewage system

Vienna officials credit the city's sewage system for preventing an epidemic—and even a higher rate of illness—during July's Danube River flood, the worst in over 50 years.

The system proved able to dispose of the heavy rainfall—plus the 350,000 cu meters of water that the city pumps in every day via two main lines from the Alps. (The system is built to absorb up to 500,000 cu meters of water daily in addition to 2,000,000 cu meters of rain per second.)

The Danube River is the major disposal line of the system. It's fed by five main sewage pipes (some 31 ft wide and 16 ft high) that receive water from a 620-mi long network of smaller pipes. Most of the sewage system is located at a higher level than the Danube. But as protection against rising river levels, five pumping stations along the banks force sewage water into the river and prevent river water from entering the system. During the flood these stations were in continuous operation for more than three weeks and handled up to 792 gal per second per pump.

The Danube also acts as the chief chemical disintegrator of the sewage water. But certain city areas that are too far away from the river or are located at too low a level to reach it economically are serviced by a biological purifying plant near Inzersdorf.

International briefs . . .

• **Spanish development scheme**—A new Spanish 10-year plan calls for spending $93.8 million on industrialization, electrification, railway expansion, and agricultural improvement—particularly irrigation—in the province of Jaen. Top priority to finishing reservoirs and electric power stations under construction or in the project stage.

• **Paraguay plans waterworks**—The Export-Import Bank will loan Paraguay $7.2 million to buy U. S. equipment and services for installing the first public water supply system in the capital city of Asuncion, located on the Paraguay River. The projected control water works would have a capacity of around 10 mgd. and serve an area of about 5 sq miles.

• **Puerto Rico housing projects**—Faced with the problem of some 100,000 slum-area houses, Puerto Rico will ask U. S. aid for construction of 10,000 low-rent dwelling units costing around $60 million. (Congress already has approved appropriations for 35,000 units.) Meanwhile, a $45-million housing project involving around 8,000 homes is being promoted by a Puerto Rico syndicate.

• **Sicily bridge financed**—The Pontstrem Co., recently formed with U. S. capital to build the bridge across the Straits of Messina (ENR, Sept. 9, 1954, p. 45), reportedly has secured the necessary funds for construction. The sum—$120 million—will be supplied by a group of U. S. banks and private Italo-American promoters.

• **New airport for Baghdad**—British experts are surveying land outside Baghdad to find the best site for construction of a modern, $15-million airport. The present airport, which is located close to the city, is unable to handle heavy planes or jet fighters.

MEN AND JOBS

Frank Kerekes named dean of Michigan engineer school

New dean of the academic program of Michigan College of Mining and Technology is Frank Kerekes, who has been on the civil engineering faculty at Iowa State College since 1920, and for the past seven years has been assistant dean of engineering.

A native of Hungary, Dean Kerekes holds degrees from City College of New York and Columbia University. At present he is vice-president of the American Concrete Institute. As chairman of that organization's building code committee, he led the compilation of a code that now is standard in more than 2,000 cities.

In 1948, while chairman of the Iowa Building Code Council, Dean Kerekes was designated a "Second Century Leader" by the Des Moines Register and Tribune. He also holds the Anson Marston Award of the Iowa Engineering Society. At Michigan College of Mining and Technology he is in charge of accredited curricula in 17 departments, including civil engineering.

Appoint engineer generals to Mississippi group

Recess appointments as members of the Mississippi River Commission have been tendered to Brig. Gen. William E. Potter and Brig. Gen. Charles G. Holle, a White House announcement said last week.

Gen. Potter is Missouri River division engineer and Gen. Holle is South Atlantic division engineer. They succeed the late Brig. Gen. Ernest Graves and Brig. Gen. Herbert D. Vogel—now chairman of the Tennessee Valley Authority.

Two waterfront authorities end long, active careers

Charles E. Trout, vice president of the Great Lakes Dredge & Dock Co., New York, and manager of its Atlantic Division, and Austin H. Downs, general superintendent of that division, retired on Oct. 1.

Mr. Trout, one of the country's foremost authorities on the construction of waterfront structures, is a native of Canada and a graduate of MIT. He began work with the New York Department of Docks in 1900, went to the Turner Construction Co. on the construction of the Brooklyn Army Supply Base in 1917, and after about 20 years as a consulting and construction engineer specializing in marine work, joined the Great Lakes Dredge and Dock Co. as manager of its Atlantic Division in 1937. Mr. Trout, a member of the American Society of Civil Engineers since 1899, has been its treasurer since 1941.

Mr. Downs has spent most of his active career with the Great Lakes organization, ending 40 years of service with his retirement.

Samuel D. Stickle has been promoted to succeed Mr. Trout as manager of the Atlantic Division, and Harry E. Hinkel replaces Mr. Downs.

Men and Jobs briefs . . .

• **Business**—**A. W. Morgan** becomes a vice-president of Grove-Shepherd-Wilson & Kruge, Inc. . . . **A. T. Kearney** elected president and board chairman of Zonolite Co., Chicago . . .

Eugene H. Harlow promoted from vice-president to executive vice president, and **C. J. Murphy** becomes a vice-president of Frederic R. Harris, Inc. . . . **H. A. Saurbrey** elected executive vice president of Mellon-Stuart, Pittsburgh contracting-engineering firm . . . **Millard M. Moore,** formerly of the Grand Rapids city engineering department, becomes chief engineer for D. C. Byers Co. . . .

John M. Adams becomes corporate engineer and real estate agent for Lehigh Coal & Navigation Co. . . .

L. S. LaPierre and **C. B. Litchfield,** formerly partners in the architectural firm of Alfred Hopkins & Associates, have formed—LaPierre, Litchfield & Partners, in New York City.

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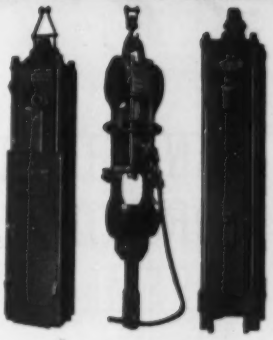

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OBITUARIES

Otto K. Ewy, 64, civil engineer with the Colorado Highway Department, died Sept. 8 in Denver. He had been with the department since 1934.

Howard Robbins, 58, since 1947 regional director of the Bureau of Reclamation at Amarillo, Tex., died Sept. 12 in Rochester, Minn. He started his Bureau career in 1916 on the Grand Valley project near Grand Junction, Colo.

John W. Corvin, 49, assistant district engineer with the California Division of Highways in San Luis Obispo, died Sept. 19. He joined the division in 1928 after graduation from the University of Nevada.

Otto W. Anschuetz, chief engineer for Kansas City Bridge Co., died Sept. 19. A 1910 graduate of Washington University in St. Louis, he worked for Missouri Valley Bridge & Iron Co., Leavenworth, Kans., and Union Bridge & Construction Co. before becoming associated with Kansas City Bridge in 1936.

Maximilian H. Leister, 63, Haverford, Pa., civil engineer and former general manager of Sun Oil Co.'s motor products division, died Sept. 19. A graduate of Pennsylvania Military College, he served the oil firm 30 years before retirement in 1951.

Stanley Yocom, 74, former chief of engineering and architecture for the Philadelphia Board of Education, died Sept. 19 in Williamsburg, Va. At the time of his retirement in 1950 he had been with the board for 42 years. One of his jobs was supervising the board's multi-million dollar construction program following World War II.

Stephan Schifter, 69, Eagleville, Pa., builder, died Sept. 17. He was founder and president of Stephan Schifter, Inc., developers and contractors.

Thomas H. Coe, 78, civil engineer and building contractor, died Sept. 24 in Providence, R. I. He was a graduate of Worcester Polytechnic Institute.

George A. Jessop, 71, consulting engineer for S. Morgan Smith Co., York, Pa., died in an automobile accident Sept. 24. An expert on hydraulics, he started his career with the company in 1901. In 1923 he became chief engineer, a post he held until retirement in 1949.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Coleman Bros. Corp., 40 Central St., Boston, Mass. CA $1,281,121, est. $1,200,000. hy. and bridge constr. FI-1-315 (7), Billerica and Chelmsford. CD 9/24, under LB.

▲ **V. Barletta Co.**, 10 Whipple Ave., Roslindale, Mass. CA $1,256,390, est. $1,300,000. Contr. 220, Sect. 133 B Framingham Trunk Sewer (Interceptor) from Sudbury Aqueduct to Natick Pumping Station, Natick, BOSTON, MASS. Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston. CD 9/14, under LB.

R. Zoppo Co., 842 Providence Hy., Norwood, Mass. LB $964,932, est. $1,000,000. water storage reservoir and water supply mains, Prospect Hill, TAUNTON, MASS. City, Bd. Water Comrs., City Hall, Taunton, Mass. Bids Oct. 1. CD 9/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John Capobianco**, 101 Tremont St., Boston, Mass. LB $1,216,500, est. $1,380,000. Junior-Senior High SCHOOL, HOPKINTON, MASS. Town, School Bldg. Comn., Hopkinton, Mass. Bids Sept. 30. CD 9/17.

Gilbane Building Co., 90 Calverly St., Providence, R. I. CA $947,942. two elementary SCHOOLS, Tower and Westminster Sts., WESTERLY, R. I. Town, C. E. Mason, supt. Schools, Westerly High School, Westerly, R. I. Bids Sept. 24. CD 10/1, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg.

Latrobe Road Constr. Co., Latrobe, Pa., LB, $3,074,016 4.9 mi. Section 35-E, on Northeastern extension in Franconia and Salford Twps., Montgomery Co. Bids Sept. 30. CD 9/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Dineen Constr. Co.**, 514 St. Paul Pl., Baltimore 2, Md. CA Est. $1,147,500. 153 brick HOUSES, Kavanaugh Rd., West Inverness section, BALTIMORE, MD. Victor Posner Developments, 514 St. Paul Pl., Baltimore, Md.

Associated Contractors, 7332 Waverly St., Bethesda, Md., LB, $864,000. 5 story, 2 bsmnt. PARKING GARAGE, 11 and F Sts. N. W., WASH., D. C. Goldnamer Assoc., Tower Bldg., Wash., D. C. Bids Sept. 21. CD 9/3.

▲ **W. M. Chappell Co.**, 1346 Good Hope Rd. S. E., Wash., D. C., CA, $1,777,000, base bid and alternate 1, Junior High SCHOOL, Ninth and Mississippi Ave. S. E., WASH., D. C. Bd. Educ., 13 and K Sts., N. W., Wash., D. C. CD 5/29/52.

SOUTH

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **J. A. Jones Constr. Co.**, 133 Ellis St. N.E., Atlanta, Ga., CA, $2,259,126, research and development ENGINEERING BLDG., Redstone Arsenal, HUNTSVILLE, ALA. U. S. Eng., P.O. Box 1169, Mobile, 7, Ala. Bids Sept. 27. CD 9/2.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ind., Frankfort**—BA 10/27—Bd. P. Wks., City Hall, sewage treatment plant and sewer extension to present system. $1,000,000. Paul Kleiser & Assocs., 671 Tippecanoe St., Terre Haute, consult. engrs.

BIDS ASKED—BUILDINGS

▲ **Mich., Northville**—SPECIAL TREATMENT BLDGS.—BA 10/26—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, two 1 story, 75x348 ft., steel, masonry special treatment bldgs., Northville State Hospital. ▲ $1,900,000. Plans deposit $25. O'Dell Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts. CD 1/29/53.

SOON LETS CONTRACT—BUILDINGS

▲ **O., Oberlin**—DORMITORIES—Oberlin College, Oberlin, soon lets contract men's dormitory and women's dormitory, dining hall. $1,120,000. Plans deposit $50. Potter, Tyler, Martin & Roth, 128 E. 6th St., Cincinnati, engrs.-archts. CD 1/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Henry J. Spieker Co.**, 1418 Elm St., Toledo, O., CA Est. $1,000,000. water pumping station and treatment plant on south side of Maumee River, filtration plant, 24 in. main in Maumee Ave. to new plant, to be built at southeast edge of city on S. R. 110, Harrison Twp., NAPOLEON, O. Campbell Soup Co., 100 Market St., Camden, N. J. Bids Sept. 13, awarded Sept. 29. CD 9/1.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Herlihy Mid-Continent Co.**, 135 S. La Salle St., Chicago 3, Ill., CA, $1,298,960, PARKING GARAGE, Illinois, Grand, Rush and Wabash Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. Awarded Sept. 27. CD 8/16, under LB.

▲ **Herlihy Mid-Continent Co., 135** S. La Salle St., Chicago 3, Ill., CA, $5,000,000. WAREHOUSE, OFFICE, Roosevelt Rd. and Cicero Ave., CHICAGO, ILL. Alden's Inc., 1417 W. Palina St., Chicago, Ill. Bids Sept. 20, awarded Sept. 27. CD 9/8.

▲ **S. M. Wilson Co.**, 1616 Cleveland Ave., Granite City, Ill., CA, $704,629, general contract, Junior High SCHOOL;

M. H. Wolfe & Co., 20 and Adams Sts., Granite City, Ill., CA, $427,834, general contract, Senior High SCHOOL addn., GRANITE CITY, ILL. Community Unit School Dist. of Granite City No. 9, Paul A. Grigsby, supt. Schools, Granite City, Ill. Bids Sept. 21.

J. L. Simmons Co., 185 N. Wabash Ave., Chicago, Ill., CA, $919,280, general contract, INDOOR PRACTICE BLDG., MADISON, WIS. University of Wisconsin, Madison, Wis. Bids Sept. 1, awarded Sept. 25. CD 9/14, under LB.

▲ **Geo. A. Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA, Total est. $15,000,000. "Capitol Courts" SHOPPING CENTER, MILWAUKEE, WIS. Ed. Schuster & Co., Inc., 2153 N. 3 St., Milwaukee, Wis. Bids July 22. CD 7/7.

▲ **Consolidated Water Power & Paper Co.**, Wisconsin Rapids, Wis., Day Labor, $1,300,000, woodroom addn. to PAPER MILL, WISCONSIN RAPIDS, WIS. CD 8/25.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

▲ **First Detroit Building Co.**, 16752 Ecorse St., Allen Park, Mich. CA Est. $1,500,000. Fruit Orchard Subdivision, 100 ranch HOMES, Maylawn, Melbourne, Andrews and Chatham Sts., ALLEN PARK, MICH. Flood Realty Co., 5637 Allen Rd., Allen Park, Mich.

▲ **Franklin Constr. Co.**, 18307 James Couzens Dr., Detroit, Mich. CA Est. $2,500,000. 200 brick ranch HOMES, 14 Mile Rd. west of Middlebelt, BIRMINGHAM, MICH. Certified Realty Co., 18307 James Couzens Dr., Detroit, Mich.

▲ **Fordson Homes, Inc.**, **Myers-Hill Realty**, Telegraph Rd. and Brady St., Dearborn, Mich. Owner Builds. $1,000,000. 110 single brick HOUSES, DEARBORN, MICH.

▲ **Mendota Building Co.**, 14300 Cloverdale St., Detroit 30, Mich. Owner Builds. $5,000,000. 500 HOMES, Devonshire Park Orangelawn, Middlebelt and Plymouth, LIVONIA, MICH.

▲ **Peter W. Decker**, 520 W. Fort St., Detroit 26, Mich. CA Est. $1,500,000. 150 brick ranch HOMES, Merriman Rd., Joy and Plymouth Rd. section, LIVONIA, MICH. Joseph F. Ferry Co., 19601 Grand River St., Detroit 23, Mich.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Tex., Houston**—SHOPPING CENTER—Bids Asked—Palms Center Corp., c/o Oscar Holcombe & Sterling Hogan Sr., First National Bank Bldg., shopping center main bldg. $3,500,000. Walter P. Moore, 2 Pinedale St., and Dale S. Cooper & Assocs., 420 Sul Ross, engrs. Irving R. Klein & Assocs., 1317 Austin St., archts. CD 7/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **English Electric Export & Trading Co. Ltd.**, 23-25 Beaver St., New York, N. Y. LB $1,066,662. two 68,000 hp. hydraulic turbines and fittings for Table Rock Dam, Branson, Taney Co., CIVENG-03-050-55-10, MISSOURI. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Sept. 29. CD 8/24.

▲ **B. & G. Constr. Co.**, Carthage, Mo. LB $535,104. Contr. 1 sewage imprvs., Hinkson Creek Outfall Sewer;

Carrothers Constr. Co., Paola, Kan. LB $841,235. Contr. 2 sewage treatment plant, alterations to existing Bear Creek Sewage Pumping Station, outfall sewer, access road, COLUMBIA, MO. City, Columbia, Mo. Bids Sept. 21. CD 9/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Knutson Constr. Co.**, 3000 E. Hennepin Ave., Minneapolis, Minn. CA Est. $1,000,000. general contract 1 story, 360 ft. long, 1,350,000 sq. ft. PLANT addn., West Lake St. and Monk Ave., HOPKINS, MINN. Merchants Refrigerating Co., J. B. Frane, mgr., Hopkins, Minn. Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, Minn., archts.

▲ **Klassen Homes, Inc.**, 81 St. and Oldham Rd., Kansas City, Mo. Owner Builds. $1,500,000. 1,200 HOMES, KANSAS CITY, MO.

▲ **Millstone Constr. Co., Inc.**, 8510 Eager Rd., St. Louis 19, Mo. LB $4,473,200, general contract;

Gartland Co., Inc., 2112 Big Bend Blvd., St. Louis 17, Mo. LB $689,700, plumbing;

Corrigan Co., 2525 St. Louis Ave., St. Louis 6, Mo. LB $829,481, heating;

E. O. Dorsch Electric Co., 2011 Olive St., St. Louis, Mo. LB $402,000, electrical work;

Lewis Constr. Co., 567 Lyman Place, Webster Groves, Mo. LB utilities for 860 HOUSING Units in four 2 story apartment bldgs., area bounded by Carr, 18, 20 and O'Fallon Sts., Phase No. 1 of Mo.-1-6, ST. LOUIS, MO. St. Louis Housing Auth., John J. O'Toole, exec. dir., 901 Washington Ave., St. Louis 1, Mo. Bids Oct. 1. CD 8/30.

▲ **Shaw & Estes Constr. Div.**, 1407 S. Akard St., Dallas, Tex., CA Approx. $1,500,000. constr. series of ENGINE TEST CELLS for large turbo-jet engines; CA Approx. $750,000, doubling capacity existing FABRICATION and MFG. PLANT, GARLAND, TEX. Shaw & Estes Co., 1407 S. Akard St., Dallas, Tex. CD 9/28.

▲ **Thad Dederick**, Box 13067, Houston, Tex., LB $2,135,000 160-bed HOSPITAL, ORANGE, TEX. Orange County, Orange, Tex. Bids Sept. 29. CD 9/15.

▲ **Grimshaw Constr. Co.**, K O M E Bldg., Tulsa, Okla., CA, $4,000,000. ultra-modern APARTMENT HOUSE with shops, 2 swimming pools, on old Polo grounds at E. Alameda and South University, DENVER, COLO. Alameda Building Corp., c/o L. C. Fulenwider, Jr., Equitable Bldg., Denver, Colo. CD 7/26.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Calif., Whittier** — SCHOOL — BA 10/20 — Whittier Union High School District, 610 W. Philadelphia St., 1 story, reinforced brick 44,000 sq. ft. Cali-

(Continued on page 52)

(Continued from page 51)

fornia High School. $1,000,000. Extended date. Wm. H. Harrison, 816 W. 5 St., Los Angeles, archt. CD 7/22/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Guy F. Atkinson Co. & Ostrander Co.**, 10 W. Orange Ave. S., San Francisco, Calif., CA, $12,708,179, navigation locks adjacent gravity dam and fish ladder, The Dalles Dam, Wasco Co., CIVENG-35-026-55-176, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Aug. 31. CD 9/3, under LB.

▲† **General Electric Co.**, Public Service Bldg., Portland, Ore., LB $11,114,620, eight generators; LB $5,613,284, four generators, The Dalles Dam, Wasco Co., CIVENG-35-026-55-29, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Oct. 1. CD 8/13.

▲ **Healy Tibbits Constr. Co.**, 411 Brannan St., San Francisco, Calif., LB, $1,124,100, installing Joint Outfall Submerged Pipeline No. 3, Joint Outfall "A", Unit 1-D, San Pedro, LOS ANGELES, CALIF. Los Angeles County Sanitation Dist. 2, 2020 Beverly Blvd., Los Angeles, Calif. Bids Sept. 22. (Correction—location of work.) CD 9/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Henry M. Mason Co.**, 2206 N. W. Thurman St., Portland, Ore., LB $1,010,310. SERVICE CENTER, PORTLAND, ORE. Portland General Electric Co., 610 S. W. Broadway, Portland, Ore. Bids Sept. 28. CD 9/13.

CANADA

BIDS ASKED—BUILDINGS

▲ **Ont., Newmarket**—HOME FOR AGED—BA 10/19—Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, part 1, 2 and 3 story, H-shaped, 400x420 ft., steel frame, concrete block Home for Aged, $3,164,000. Plans deposit $100. Wallace, Carruthers & Assocs. Ltd., 35 Isabella St., Toronto, engrs. H. D. Chapman, 61 Avenue Road, Toronto, archt. CD 12/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Collet Freres Ltd.**, 1978 Parthenais St., Montreal, Que., CA $1,700,000. Graphic Arts SCHOOL, St. Hubert St., MONTREAL, QUE. Province of Quebec, Dpt. Provincial Secy., Quebec City, Que. CD 3/8.

Proposed Projects——

WATER SUPPLY

▲ **Colo., Pueblo**—South Side Water Bd., Pueblo, voted bonds, water imprvs. $3,000,000. CD 7/12.

▲ **Ill., Springfield**—City Council, City Hall, $1,000,000 bond election Nov. 2, imprvs. at Lake Springfield, source of municipal water supply, incl. new channel dam and lake filter plant addn. CD 8/19.

STREETS AND ROADS

▲ **KANSAS**—Kansas Turnpike Auth., Annex Bldg., Topeka, 236 mi. turnpike project Kansas City to Oklahoma border south of Wichita, $160,000,000. Howard, Needles, Tammen & Bergendoff, 1805 Grand Ave., Kansas City, Mo., consult. engrs. for entire project.

51 bridges Kansas City-Big Springs section, Harrington & Cortelyou, 802 Dwight Bldg., Kansas City 6, Mo., engrs.

61 bridges, 51.2 mi. roads Wichita-Oklahoma line section, Wilson & Co., Box 937, Salina, engrs.

22 bridges near Wichita, R. S. Delamater, 547 S. Hillside St., Wichita, Zone 17, engr.

5.1 mi. road near Wichita, Ediger Eng. Co., Box 145, Wichita, engr.

4.9 mi. road near Wichita, Evans & McKee, Great Bend, Kan., engrs.

10 mi. near El Dorado, Brinck, Dunwoody & Rector, New England Bldg., Topeka, engrs.

50 bridges Topeka-Emporia section, Finney & Turnipseed, New England Bldg., Topeka, engrs.

22 bridges, 59.8 mi. west of El Dorado, Servis-Van Doren & Hazard, 2015 Gage Blvd., Topeka, engrs.

7.2 mi. east of Topeka, Burgwin & Martin, Fredonia, engrs.

8 mi. east of Big Springs, Paden & Bartlett, 338 New England Bldg., Topeka, engrs.

6.8 mi. near Lawrence, Raymond W. Campbell & Assoc., Merriam, engrs.

5 mi. east of Lawrence; Shafer & Kline, Overland Park, engrs.

26.5 mi. west from Kansas City, Truman Schlup, 1401 Fairfax Rd., Kansas City, Kan., engrs. CD 8/4/53.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Chelsea-Revere—Sect. 1 Contr. 3 Northeast Expressway Chelsea to Revere, $2,000,000. Parsons, Brinckerhoff, Hall & Macdonald, 51 Cornhill, Boston, consult. engrs. CD 2/2.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Fall River—Second Phase State Hy. and Bridge constr. Expressway and Narrows to President Ave. $1,500,000.

EARTHWORK, WATERWAYS

▲ **Oregon**—Coos-Curry Electric Co-operative, Inc., Coos Bay, hydro-electric plant on Illinois River, Curry Co. $28,000,000. John S. Cotton Assocs., 28 Brookside Dr., San Anselmo, San Francisco, Calif., consult. engrs. Ivan Laird, Coos Bay, engr.

▲ **Texas**—U. S. Eng., Box 1229, Galveston,

Buffalo Bayou Flood Control Proj. $16,191,900.

Intracoastal Waterway river and harbor work, Aransas Pass, $30,700.

Turtle Cove river and harbor work, Aransas Co., $40,000.

Sabine-Port Neches river and harbor work, $6,875,000.

Port Neches-Corpus Christi river and harbor work, $829,100.

Guadalupe River river and harbor work at Seadrift, $74,300.

Port Aransas-Corpus Christi river and harbor work—waterway. $180,000. CD 6/9/44.

PUBLIC BUILDINGS

▲† **Calif., Long Beach**—HOSPITAL—Veterans Admin., Munitions Bldg., Wash., D. C., 678-bed existing hospital addn. $8,000,000.

▲ **Conn., New Britain**—HOSPITAL—State, Ralph G. Macy, P. Wks. Comr., State Office Bldg., Hartford, plans by Henry F. Ludorf, 100 Pearl St., Hartford, brick memorial hospital addn. $2,395,000. Hubbard Lawless & Blakeley, 110 Whitney Ave., New Haven, mech. consult. engrs. CD 7/20.

▲ **Ia., Ames**—ANIMAL INDUSTRIES, etc.—State Bd. Educ., State Office Bldg., Des Moines, animal industries bldg., $1,500,000, CD 7/1; power plant expansion, $470,000; home economics bldg. addn., $950,000; library addn., $975,000, all Iowa State College.

▲ **Ky., Lexington**—APARTMENT—State, Div. Purchases, Frankfort, plans by Brock & Johnson, 159 Barr St., 8 apartment bldgs. for University of Kentucky, $2,000,000. CD 10/2/51.

▲ **Mich., Berkley**—SCHOOL—City, Bd. Educ., 2325 Catalpa St., $2,000,000 bond election Oct. 19, Junior High School facilities, Earl G. Meyers, 806 Farwell Bldg., Detroit, archt. CD 12/1/52.

▲ **Minn., Richfield (P.O. Minneapolis)**—SCHOOL—Bd. Educ., E. C. Ellenson, clk., plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, 2 story, Junior High School, Fourth Ave. between 71 and 73 Sts., $1,500,000; grade school Fourth Ave. between 71 and 73 Sts., $385,000.

▲ **Mo., Springfield**—POWER PLANT—City, voted $11,127,000 bonds Sept. 14, power plant. CD 10/6/49.

▲ **Mont., Miles City**—SCHOOLS—Custer County High School Dist., Miles City, bond election Nov. 2, high school, $1,300,000; elementary school, $346,000.

▲ **Neb., Omaha**—HIGH SCHOOL—Bd. Educ., 3902 Davenport St., North Omaha Junior High School, 37 and Redick Ave. $1,500,000. CD 3/28/52.

▲ **N. M., Albuquerque**—AUDITORIUM—University of New Mexico, Albuquerque, plans by Meem, Zehner, Holian & Assocs., Box 628, Santa Fe, masonry 2,200 seating capacity auditorium. $1,000,000.

▲ **N. Y., Seacliff**—HIGH SCHOOL—Central School Dist. 1, Seacliff, voted bonds Sept. 25, Junior-Senior High School, $2,997,500.

▲ **Tex., Corpus Christi**—COURT HOUSE—Nueces Co., Court House, plans by Lynn A. Evans, archt., and O. Roy Abbott, designer, Bevly Bldg., court house. $1,750,000. CD 11/23.

▲ **Tex., Denton**—POWER PLANT—City, voted bonds Sept. 21, (future) electric power plant expansion $2,750,000; rehabilitate and expand electric power plant, $2,071,020. Black & Veatch, 4706 Broadway, Kansas City 2, Mo., and F. W. Woodruff Eng. Co., 1st. Natl. Bank Bldg., Fort Worth, consult. engrs. CD 9/14.

▲† **Wash., Bremerton**—ENGINEERING, etc.—P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, engineering bldg., $7,375,000; imprv. Pier 4, $7,530,000; sheet metal shop annex $300,000; petroleum products testing lab $750,000; packing and preservations bldg., $750,000; incinerator $591,000; third floor for Bldg. 457, $330,000; fire protection for drydocks 1 and 5, $761,500, electronic-electric bldg., $7,313,000; new drydock $22,000,000; sewage interceptor system, $761,500; all for Puget Sound Nava' Shipyard.

▲† **Wash., Bremerton**—SHOP—P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, 260,000 sq. ft. electronics and electric shop, Puget Sound Naval Shipyard. $7,313,000. CD 7/22/53.

▲† **Wash., Shelton**—DEPOT—P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, develop naval supply depot's heavy storage annex. $1,264,000.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—TEMPLE—Mount Sinai Temple, 4 St. and New Hampshire Ave., temple in West Los Angeles District. $1,000,000.

▲ **Calif., Ontario and West Covina**—DWELLINGS—Williams Constr. Co., c/o Richard Leitch, archt., 2545 E. Washington St., Pasadena, 200 frame, stucco dwellings at various locations. $2,000,000.

▲ **Calif., Van Nuys**—DWELLINGS—Corval Estates, 8203 W. 3 St., Los Angeles, 104 frame, stucco dwellings, Topham St., Junilla Ave., Oakdale Ave., etc. $1,000,000.

▲ **Colo., Denver**—RESIDENCES—B & B, Inc., c/o Kenneth L. Smith, Equitable Bldg., Denver, 1,200 brick residences in area bounded by E. Hampden Ave., South Dahlia, E. Mansfield and new Valley Hy. approach. $20,000,000.

▲ **Colo., Denver**—SHOPPING CENTER—Markets, Inc., 2333 S. Sherman St., plans by W. W. Ahlschlager, Jr. & Assocs., engrs. and archts., 2505 Turtle Creek Blvd., Dallas, Tex., 650,000 sq. ft., two level, brick shopping center, incl. 62 stores and shops, off-street parking, near Lakeside Amusement Park. $12,000,000.

▲ **Conn., Branford**—RESIDENCES—Sturgess-Buza-Jochmus Co., c/o Charles T. Sturgess, 85 Whitney St., New Haven, plans by Schilling & Goldbecker, 18 Trumbull St., New Haven, 160 residences, Blackstone Property. $2,500,000.

▲ **Conn., Greenwich**—OFFICE—Louis C. Huck, Jr., 34 East Putnam Ave., plans by Massari & Raymond, 18 Broad St., Stamford, 3 story J-shaped, 34,000 sq. ft. office, west side of Deerfield Dr. $2,250,000.

▲ **Conn., New Haven**—APARTMENT—Oak-York Realty Co., 70 College St., plans by Kane & Fairchild, 734 Asylum Ave., Hartford, 100 unit apartment and parking, 370 Oak St. $1,000,000.

▲ **Ill., Chicago**—HOSPITAL—Sisters of Mercy, 2537 S. Prairie Ave., hospital within 50-acre tract purchased by Loyola University for medical center at Pratt Ave. and Carpenter Rd. $6,000,000.

▲ **Ind., Indianapolis**—APARTMENT—Allen W. Clowes Fletcher Trust Bldg., Zone 6, 11 story apartment, 32 and Illinois Sts., $2,000,000. Shepley, Bulfinch, Richardson & Abbott, 1 Court St., Boston, Mass., consult. engrs.

▲ **Kan., Kansas City**—HOUSES—Quivirian Development Co., c/o J. P. Wolfe, Huron Bldg., Kansas City, Kan., 80 houses. $1,000,000.

▲ **Mo., Kansas City**—DEPARTMENT STORE—Jones store Co., A. H. Clark, pres., 12 and Main—Walnut Sts., Kansas City, Mo., plans by Wm. B. Fullerton, Jr., 15 W. 10 St., Kansas City, Mo., rebuild extensive downtown department store. $5,000,000.

▲ **N. Y., New York**—APARTMENT—George J. Engler & Saul Eisenberg, c/o Kahn, Jacobs & Resnick, archts., 2 Park Ave., Zone 16, apartment, 74-82 Park Ave. and 36-50 E. 39 St. $2,450,000.

▲ **N. Y., New York**—APARTMENT—Society of the New York Hospital, 525 E. 68 St., Zone 21, plans by Pomerance & Breines, 33 W. 46 St., Zone 19, apartment, York Ave. between 68 and 69 Sts. $2,000,000.

▲ **O., Cincinnati**—RESIDENTIAL—Charles Springmyer, 3025 Werk Rd., residential development, 103-acre tract, Queen City and Harrison Ave. $5,000,000.

▲ **O., Madeira**—HOMES—Louis H. Sebel, 626 Broadway, Cincinnati, approx. 100 one story brick homes in Madeira Area. $1,500,000.

▲ **Tex., Austin**—HOTEL—Commodore Perry Hotel, 800 Brazos St., 11 story hotel addn. to existing 12 story hotel, masonry contr. $1,500,000.

▲ **Va., Alexandria**—SHOPPING CENTER—Tower Constr. Co., 1726 "L" St. N. W., Wash., D. C., plans by Joseph H. Saunders, 121 S. Columbia St., Bradley Shopping Center, King St. and Bradley Rd. $2,000,000.

▲ **Wis., Milwaukee**—OFFICE—Equitable Life Assurance Society of U. S., 225 E. Michigan St., plans by I. Clavan, 393 7th Ave., New York, N. Y., and Fritz von Grossman, assoc. archt., 4630 W. Burleigh St., Milwaukee, 5 story 100x120 ft. office. $1,250,000. CD 11/30.

▲ **Ont., Toronto**—APARTMENTS—Owner, c/o Bregman & Hamann, archts., 7 Adelaide St. E., seven 3 story, bsmnt., 90x190 ft., 32-suite each APARTMENTS, East Drive in Suburban York Twp. area. $1,890,000.

▲ **Que., Chicoutimi**—SHOPPING CENTER—Syndicate, c/o J. A. Hamel, Riviere du Moulin, Que., shopping center, Blvd. Talbot, $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Birmingham**—WAREHOUSE—Molton Allen & Williams, 4 Place and Theta Ave., plans by Rust Eng. Co., Exchange Bldg., warehouse. $1,000,000.

▲ **Calif., El Segundo**—WAREHOUSE—Northrop Aircraft Corp., 1001 E. Broadway, Hawthorne, 200,000 sq. ft., tilt-up concrete warehouse, $1,000,000.

▲ **Mich., Petosky**—PLANT EXPANSION—Petosky Portland Cement Div. of Penn-Dixie Cement Corp., 60 E. 42 St., New York, plant expansion, incl. replacement steam engines with trucks in quarries, crushing equip. etc. and installation of coolers under kilns. $1,000,000.

▲ **W. Va., Natrium**—RESEARCH—Columbia Southern Chemical Corp., subsidiary Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, Pa., 2 story, 35,000 sq. ft., brick, block, steel frame research bldg. $1,500,000.

▲ **Alta., Edmonton**—POWER PLANT—Canadian Utilities Ltd., 10529 Jasper Ave., steam power plant and 2 transmission lines, $5,000,000. Haddin, Davis & Brown, 9912A 109th St., consult. engrs. CD 9/24.

▲ **Que., Val d'Or**—CONCENTRATOR, etc.—Quebec Lithium Corp., Barraute, concentrator and 6-mi. railway spur $5,000,000.

UNCLASSIFIED

▲ **Minnesota**—RURAL DISTRIBUTION LINES—People's Co-operative Power Assoc., Rochester, 149, mi. rural distr. lines, 43 mi. 34.5 KV transmission line, sub-station, facilities sys. imprvs., Olmstead Co., $1,060,000. CD 11/26/48.

"Smoother stripping -cuts cable costs"

Allison TORQMATIC equipped Osgood dragline owned by J. C. Kitzmiller Coal Co. Unit has 3 yard bucket, 80 foot boom, strips 1000 tons of coal per month.

AFTER 20,000 hours of low-cost strip-mining, veteran mine owner J. C. Kitzmiller reports "smoother stripping – reduced cable cost" due to shock-free power transmission in his Osgood dragline. The savings he's made with his Allison TORQMATIC Converter have made him decide to specify Allison TORQMATIC DRIVES in future equipment.

He's spending less for cable replacement in his Osgood dragline because the TORQMATIC Converter protects cable by absorbing sudden shock loads.

He's spending less for dragline repairs, too. The TORQMATIC Converter gives the operator time to cut off power—"throw out the drag"—when the bucket hits a snag, guards boom and drive line from harmful overloads.

And he's getting more work from his drag because with fewer repairs it stays on the job *earning* money—out of the shop *costing* money.

The TORQMATIC Converter matches engine power to load demand, helps prevent harmful engine lugging and stalling. It multiplies engine torque up to 3½ times—broadens the engine's effective horsepower range.

When load demand is equal to, or less than, engine torque the Allison TORQMATIC Converter acts as a fluid coupling to conserve fuel, boost engine life. This feature is standard equipment in every Allison Converter.

You can produce more for less with shock-free TORQMATIC power transmission in your 40- to 400-horsepower gasoline or Diesel equipment. Ask your manufacturer or dealer about TORQMATIC DRIVES in your equipment or write for more information to: Allison Division of General Motors Box 894E, Indianapolis 6, Indiana

ALLISON TORQMATIC CONVERTER

Simple Design – one-piece cast converter elements – minimum maintenance

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Designed for power applications in the 40 to 400 horsepower range

Longer Equipment Life – absorbs shock, eliminates harmful engine lugging, cuts maintenance costs

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Compact, efficient hydraulic drives for Cranes * Trucks * Tractors * Scrapers * Shovels * Drilling and Servicing Rigs

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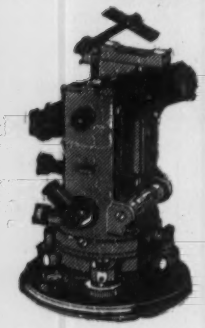
with erecting eyepiece and optical plummet



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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 25 Connecticut October 26 Massachusetts

▲† **Me., Limestone**—HANGARS—BA About 12/10—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., eleven multi-purpose hangars, Loring Air Force Base, (formerly known as Limestone Air Force Base), ENG-19-016-55-41, $5,000,000-$5,500,000. Plans deposit $25.

BIDS ASKED—BUILDINGS

▲ **Mass., Boston**—MEDICAL and SURGICAL—BA 10/28—State, Dpt. P. Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, medical and surgical bldg., Boston State Hospital, Mattapan Section, $2,800,000. Plans deposit $100, refundable. M. A. Dyer Co., 24 School St., Boston, archt. CD 9/10/53.

▲ **Conn., Bloomfield**—HIGH SCHOOL—BA 11/3—Town, H. Ward Pinney, chn. High School Building Comn., Bloomfield, high school, west of Park Ave. $1,200,000. Plans deposit $50. Sherwood Jeter Jr. & Assocs., 36 Pearl St., Hartford, archts. CD 4/6.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 28 New York
STREETS AND ROADS
October 19 Maryland October 21, 26 New Jersey
October 28 New York

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **A. S. Wikstrom, Inc.**, Box 217, Skaneatles, N. Y., LB $2,126,369, Alt A;
Walsh Constr. Co., 122 E. 42 St., New York 17, N. Y. LB $2,277,354 Alt. A; LB $2,284,659, Alt. B; for constr. substructures for The Barnhart Island Bridge and temporary steel truss floating bridge connecting Hawkins Point to Barnhart Island over St. Lawrence River, near Massena, St. Lawrence Co., Spec. No. 5422-A. St. Lawrence Contr. No. 3, NEW YORK. The Power Authority of The State of New York, 270 Broadway, New York 7, N. Y. Bids Oct. 6. CD 9/24.

▲† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y. cancelled bids to have been opened Aug. 12, warehouse, Type A AMC FY 53, Griffiss Air Force Base, ROME, N. Y. $1,000,000-$3,000,000. CD 7/30.

▲ **NEW JERSEY**—New Jersey Hy Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
Lizza & Sons, Inc., 2123 Orchard St., Oyster Bay, N. Y. LB $4,683,953, grading, drainage, structures and paving for 22.78 mi. northbound roadway of Garden State Parkway from Cape May to Beesley's Point at Great Egg Bay, Contrs. 176, 177 and 178, Cape May Co. Bids Oct. 4. CD 9/20.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4th St., Harrisburg,
C. J. Langenfelder & Sons, Inc., 8427 Pulaski Hy., Baltimore, Md., LB $3,148,649. Constr. 6.05 mi. Sect. 35-F, of Northeastern Exten. in Salford Twp., Montgomery Co. and West Rockhill and Milford Twps., Bucks Co. Bids Oct. 7. CD 9/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Diesel Constr. Co.**, 2 Park Ave., New York 16, N. Y. CA Approx. $5,000,000. 17 story OFFICE, 625 Madison Ave. between 58 and 59 Sts., NEW YORK, N. Y. Moses Ginsberg & Sons, c/o Sylvan Bien, archt., 33 W. 46 St., New York 19, N. Y.

▲ **Allen & Rocks, Inc.**, 2011 "K" St. N. W., Wash. D. C. Owner Builds. $2,205,000, 210 American Homes Corp. prefabricated HOUSES at Forest Heights, near UPPER MARLBORO, MD.

▲† **Joseph Bahen Co.**, 418 Randolph Pl., N.W., Wash. D. C., CA, $1,137,300, ADMINISTRATION BLDG., Howard University, WASH., D. C. General Services Admin., Public Bldg. Wash., D. C. Bids Aug. 26. CD 8/30, under LB.

▲ **John McShain, Inc.**, 16 St. N. and North Arlington Ridge Rd., Arlington, Va., CA, Est. $10,000,000. SHRINE on Catholic University of America Grounds, WASH., D. C. Trustees of the Shrine of the Immaculate Conception of Most Rev. Richard J. Cushing, 1 Lake St., Brighton, Mass. Bids Sept. 15. CD 9/3.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 20 Virginia October 22 Kentucky
STREETS AND ROADS
October 20 Louisiana, Virginia October 21, 22 Kentucky

▲† **La., Lake Charles**—APRON AND TAXIWAY—BA 10/22—U. S. Eng., P.O. Box 1229, Galveston, Tex., apron and taxiway paving, Lake Charles Air Force Base, ENG-41-243-55-26. $3,000,000-$5,000,000. CD 8/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **FLORIDA**—State Road Dpt., Tallahassee,
Hardaway Constr. Co., Box 1360, Columbus, Ga., LB, $2,600,215, 13,770.5 ft. bridge across Old Tampa Bay between Tampa and St. Petersburg, State Road 600, Job 1013-108, Hillsborough Co. Bids Sept. 30. CD 8/30.

† **Wood Constr. Co.**, Quitman, Miss., CA, $917,833, ammunition transfer platforms, shelter structures, ammunition renovation bldg., clearing 15 acres land, Anniston Ordnance Plant, ANNISTON, ALA. U. S. Eng., P.O. Box 1169, Mobile 7, Ala. Bids Sept. 8. CD 8/25.

▲† **Merritt-Chapman & Scott Corp.**, Jensen Arcade Bldg., Houston, Tex., LB $2,489,812, est. $2,617,458. power plant substructure at Cheatham Dam on the Cumberland River, TENNESSEE. U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn. Bids Sept. 29. CD 8/11.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Thorington Constr. Co.**, 2106 N. Hamilton St., Richmond, Va., CA $815,829. two 263-man BARRACKS, FORT LEE, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Sept. 29. CD 9/16.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 26 Indiana

▲ **Ill., Chicago Heights**—BA 10/22—Sanitary District of Bloom Twp., 307 E. 14 St., sewage treatment plant addn., $1,750,000. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, Zone 11, engrs. CD 10/29/52.

BIDS ASKED—BUILDINGS

▲ **Mich., Dearborn**—DYNAMOMETER BLDG.—Bids Asked—Ford Motor Co., 3000 Schaefer St., Dearborn, superstructure dynamometer bldg. $2,000,000, Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., engrs. CD 8/13/54.

SOON LETS CONTRACT—BUILDINGS

Ill., Chicago—OFFICE—Illinois Bell Telephone Co., 212 W. Washington St., Chicago, Zone 6, soon lets contract, 4 story, bsmnt., Marquette Park Office, $950,000. Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **North Brothers**, 911 Boulevard N. E., Atlanta, Ga. CA, $2,000,000, furnishing, applying thermal insulation to steam generators, piping and equip. for steam-electric generating station at Kyger Creek Plant, CHESHIRE, O. Ohio Valley Electric Corp., 30 Church St., New York 8, N. Y.

▲ **C & C Constr. Co.**, 2001 E. Pontiac St., Fort Wayne, Ind., CA $949,890, pumping station for new sewage treatment plant;
Sewer Constr. Co., Parkersburg, W. Va., CA $671,364, interceptor sewers for new sewage treatment plant, MARIETTA, O. City, Marietta, O. Bids July 25. CD 7/7.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis.
Tomlinson Constr. Co. Ltd., 21 King St. E., Toronto, Ont., LB $3,990,620, Contrs. 22 and 23, 8.3 mi. La Porte Co. for Indiana East-West Toll Rd. Bids Oct. 6. CD 9/11.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis,
S. J. Groves & Sons Co., Box 31, Montpelier, O. CA $6,739,835, Contrs. 42, 43, 44, 45, 46, 12.4 mi. LaGrange Co. for Indiana East-West Toll Rd. Bids Sept. 29. CD 10/1, under LB.

▲ **North Brothers**, 911 Boulevard N. E., Atlanta, Ga. CA, $2,000,000, furnishing, applying thermal insulation to steam generators, piping and equip. for steam-electric generating station at Clifty Creek Plant, MADISON, IND. Indiana-Kentucky Electric Co., 30 Church St., New York 8, N. Y.

▲ **Geo. Sollitt Constr. Co.**, 109 N. Dearborn St., Chicago 2, Ill., LB, $1,259,000. incinerator at Medill Ave. and Chicago River, CHICAGO, ILL. City, City Hall, Chicago, Ill. Paul Gerhardt, City Hall, Chicago, Ill., city archt. Greeley & Hanson, 220 S. State St., Chicago, Ill., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Lombardo Constr. Co.**, 3600 Ridge Rd., Cleveland 9, O. Owner Builds. $3,000,000. five 2 story 50 x 800 ft. truck TERMINAL BLDGS., and 3 story HOTEL for truck drivers, VALLEY VIEW (c/o Cleveland P.O.), O.

▲ **Libertyville Homes**, 4942 N. Milwaukee St., Chicago, Ill., Own Forces, $3,500,000. 350 HOMES, LIBERTYVILLE, ILL. (Correction-location of project.) CD 9/29, under CA, Ill., Liberty.

▲ Darin & Armstrong, Inc., 2041 Fenkel St., Detroit, Mich. CA, $1,000,000, MANUFACTURING Methods Bldg., 12723 Telegraph Rd., DETROIT, MICH. Ford Motor Co., 38000 Schaefer St., Dearborn, Mich. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., archt. CD 7/20.

▲ S & L Constr. Co., 930 Penobscot Bldg., Detroit, Mich. Owner Builds. $1,500,000. SHOPPING CENTER, Eight Mile Rd. between DeQuindre and Merrill Sts., HAZEL PARK, MICH.

Sunningdale Homes, Inc., 14300 Cloverdale St., Detroit 38, Mich. Owner Builds. $950,000. 85 brick HOMES, Murray Hill between Pembroke and Eight Mile Rd., SOUTHFIELD, MICH.

▲ Ira Hotchkiss Co., 10940 Whittier St., Detroit 24, Mich., Owner Builds, $2,000,000, 250 frame HOMES, 9-Mile Road, Ryan and Toepfer Road Section, WARREN, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 19 Iowa October 20 Missouri
October 26 Kansas
STREETS AND ROADS
October 19 Iowa October 20 Missouri, Texas
October 21, 26 Kansas October 22 Minnesota

▲† Okla., Oklahoma City—WAREHOUSING—BA 10/28—U. S. Eng., Box 61, Tulsa, Zone 2, Area "A" Warehousing: Lot No. 1, new warehouse in Area "A", masonry, rein.-con. frame, appurtenances, Lot No. 2, warehouse addn., T-416, masonry, structural steel frame, railway spurs, drainage, utility lines, etc., Tinker Air Force Base, Inv. No. ENG-34-066-55-15. $2,500,000-$4,250,000. Extended date. CD 9/28.

BIDS ASKED—BUILDINGS

▲ Minn., Minneapolis—OFFICE—BA 10/26—Lutheran Brotherhood, Pillsbury Bldg., 5 story office, Seventh and Second Ave. South, $1,500,000, Perkins & Will, 390 W. Jackson Blvd., Chicago, Ill., archts. CD 9/10/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Morrison-Knudsen Co., Inc., & Utah Constr. Co., 319 Broadway, Boise, Idaho. LB $24,438,742, est. $27,995,187. constr. Table Rock Dam, near Branson, Stone and Taney Counties, No. CIVENG-03-050-55-1, MISSOURI and ARKANSAS. U. S. Eng., P.O. Box 867, Little Rock, Ark. Bids Oct. 6. CD 7/21.

▲† Robert E. McKee, General Contractor, Inc., P.O. Box 562, El Paso, Tex., LB $1,677,601, est. $500,000-$1,250,000. five dormitories, three dining halls, Inv. No. ENG-41-443-55-5, Abilene Air Force Base. ABILENE, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Sept. 30. CD 9/20.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Klassen Homes, Inc., 7215 Metcalf St., Overland Park, Kan. Owner Builds. $10,000,000. 1,200 HOMES Loma Vista, 327 acres, 87 and Oldham Rds., incl. sewage treatment plant, KANSAS CITY, MO. CD 10/4, under CA.

▲ Westinghouse Electric Corp., 101 W. 11 St., Kansas City, Mo. CA $1,289,500. TURBINE GENERATOR at Kaw Power Station, KANSAS CITY, KAN. City, Bd. P. Utilities, 6 St. and Ann Ave., Kansas City, Kan. CD 9/29, under LB.

▲ H. C. Beck Co., 607 First Natl. Bank Bldg., Dallas, Tex., LB $5,013,000, 8-story home OFFICE, SAN ANTONIO, TEX. United Services Automobile Assn., 1400 E. Grayson St., San Antonio, Tex. Bids Oct. 5. CD 8/25.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 28 California
STREETS AND ROADS
October 27, 28 California

▲ Wash., Seattle—BA 11/10—City, County-City Bldg., Seattle, Zone 4. concrete dam 150 ft. high on Skagit River at Gorge for City Light, $17,000,000. Plans deposit $10. P. J. Raver, city light. supt. Extended date: CD 9/14.

BIDS ASKED—BUILDINGS

▲ Wash., Seattle — SCHOOL — BA 10/28 — Shoreline School District, E. 158 St. and 20 Ave. N.E., 5 school buildings, total 168,000 sq. ft. $2,000,000. Mallis & De Hart, Lyon Bldg., Zone 4, archts. CD 9/7.

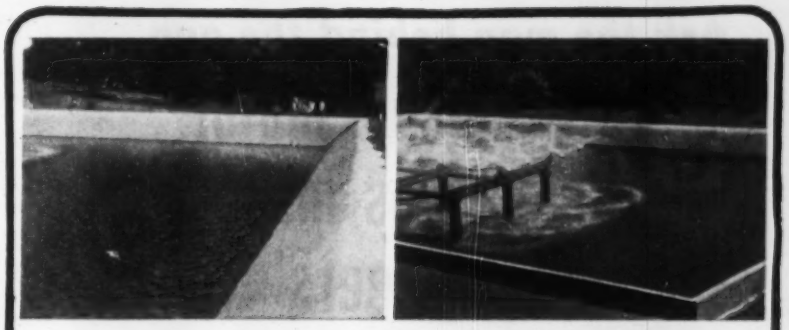
▲ Utah, Provo — PLANT — Bids Asked — Consolidated Western Steel Div. of U. S. Steel Corp., P.O. Box 2015, Terminal Annex Arcade Station, Los Angeles, Calif., steel pipe plant. $3,500,000. CD 1/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEVADA—State Hy. Dpt., State Office Bldg., Carson City,

Thorn Constr. Co., Inc., Springville, Utah, CA $1,158,539, constr. portion State Hy. Sys. from 9 mi. south-



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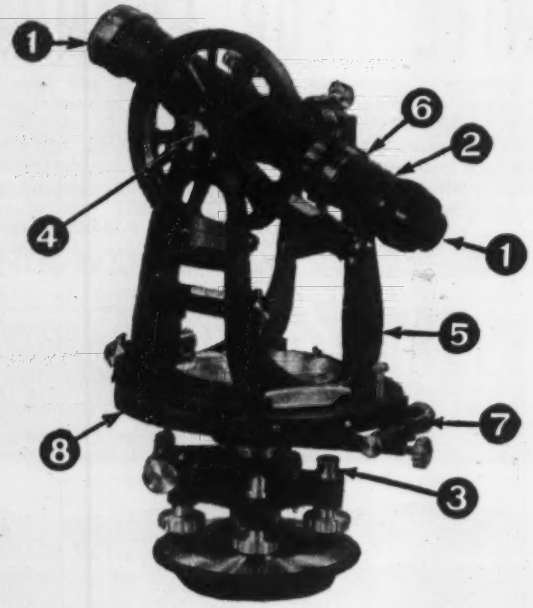

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west of Mesquite to Junction FAS Rte. 541, incl. connection on FAS 541, Rte. Sects FLH 22; 005-2 and FAS 541, Control Sections CL-08 and CL-49, Proj. Nos. FLH 22 (2); FI-IN-055-2 (4); F-005-2 (8); and S-541 (3), State Hy. Contr. 905, Clark Co. Bids Sept. 30. CD 9/20.

▲ **Donald M. Drake Co. & G. A. Fuller,** 1600 N. W. Savier St., Portland, Ore., LB **$1,616,000,** Hangar, MOSES LAKE, WASH Boeing Airplane Co., 7755 E. Marginal Way, Seattle 4, Wash. Bids Oct. 5. CD 9/16.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Ukropina-Polich-Kral & John R. Ukropina, P. O. Box 105, San Gabriel, Calif., CA, **$1,061,539,** grading, surf. 2 bridges 4 mi. between Cypress Ave. and Rt. 42, near Fullerton, Orange Co. Bids Sept. 16, awarded Sept. 29. CD 9/29, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Brady Constr. Co.,** 707 Spokane St., Seattle, Wash., CA, **$1,000,000,** 8 story rein.-con. APARTMENT, SEATTLE, WASH. E. S. Lovell, c/o Durham, Anderson & Freed, 1100 Denny Way, Seattle, Wash.

▲ **Henry M. Mason Co.,** 2206 N. W. Thurman St., Portland, Ore., CA **$1,010,310,** SERVICE CENTER, PORTLAND, ORE. Portland General Electric Co., 610 S.W. Broadway, Portland, Ore. Bids Sept. 28, awarded Oct. 4. CD 10/4, under LB.

Hahn-St. John, 219 S. Hawthorne St., Hawthorne, Calif., Owner Builds, **$984,400,** 107 frame, stucco DWELLINGS, W. Indian Sage Rd., W. Ave., H-14, LANCASTER, CALIF.

▲ **J. C. Boespflug Constr. Co.,** 605 S. Lucas St., Los Angeles, Calif., LB, **$4,213,000,** Westchester High SCHOOL, LOS ANGELES, CALIF. Los Angeles Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Sept. 17. CD 8/20.

▲ **Baruch Corp.,** 321 S. San Vicente Blvd., Los Angeles, Calif., LB, **$1,108,000,** West Side Junior High SCHOOL, POMONA, CALIF. Bd. Educ., 605 N. Park Ave., Pomona, Calif. Bids Sept. 30. CD 9/20.

▲ **George A. Fuller Co.,** 3100 West 8 St., Los Angeles, Calif., LB, **$2,525,000.** 6 story concrete OFFICE, SANTA MONICA, CALIF. General Telephone Co. of Calif., 1314 7 St., Santa Monica, Calif. CD 7/8.

▲ **Stegge Built Homes,** 2206 Springs Rd., Vallejo, Calif., Owner Builds, **$3,000,000,** home subdivision at Cottonwood Drive, VALLEJO, CALIF.

Malbritt Constr. Co., 1157 S. Beverly Dr., Los Angeles, Calif., Owner Builds, **$950,000.** 95 frame, stucco DWELLINGS, Tract 20448, WEST COVINA, CALIF.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Toronto**—BA 11/1—Scarborough Twp., 2001 Eglinton Ave. E., sewage treatment plant at Highland Creek, and 2 concrete digester tanks, etc. $1,250,000. Plans deposit $25. Proctor, Redfern & Laughlin, 11 Jordan St., engrs. CD 1/22.

BIDS ASKED—BUILDINGS

▲ **Sask., Saskatoon**—CITY HALL—BA 10/21—City, City Hall, varying from 2 to 4 story, mainly brick with stone city hall. $1,000,000. Plans deposit $100. Webster & Gilbert, 212 CPR Bldg., archts. CD 2/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Burns & Dutton Concrete & Constr. Co. Ltd., 5440 1 St. West, Calgary, Alta., CA, **$902,603.** 1 and 2 story, frame, concrete, brick airport terminal, CALGARY, ALTA. City, City Hall, Calgary, Alta. Bids Sept. 21, awarded Sept. 28. CD 9/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Thompson Starrett Co., Inc.,** 444 Madison Ave., New York, N. Y., U. S. A. CA **$3,000,000,** 6 story, 130x200 ft., structural steel, stone, concrete OFFICE, CALGARY, ALTA. Royalite Oil Co. Ltd., 58 Ave. and 104 St., Edmonton, Alta. CD 8/12.

▲ **Schultz Constr. Ltd.,** 34 McMurray St., Brantford, Ont. CA, **$1,000,000,** 300x300 ft. concrete, steel, brick glass FACTORY, BRANTFORD, ONT. Spalding Brothers, 5 Edward St., Brantford, Ont. Bids Sept. 21. CD 9/14.

▲ **C. Duranceau Ltd.,** 2545 Jacques Hertel St., Montreal, Que., CA, **$1,859,000.** 9 story, 54x260 ft., rein.-con., brick, granite OFFICE, St. Urbain St., MONTREAL, QUE. Govt. of Canada, Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Sept. 29. CD 8/11

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Cia Construction Aggregates de Venezuela C. A.** (Construction Aggregates Corp., 33 N. LaSalle St., Chicago, Ill.) CA **$11,000,000.** dredging entrance to Lake Maracaibo, VENEZUELA. Govt. of Venezuela, Caracas (Instituto de Canalizaciones, Caracas). CD 5/16/47.

(Proposal Advertisements see pp. 64 to 67)

Strong competition for Mass. water mains

Jalco Corporation of Norwood, Mass., contracted to furnish and lay 2.5 miles of asbestos-cement water mains for the town of Shrewsbury, Mass., at $76,975. Competition was strong, with the Jalco bid only 0.8% under second, 4% under third. Total spread between the first bid and the tenth is 13%.

Consulting engineers on the job are Whitman & Howard of Boston. Plans include 10-in cast iron pipe installation at bridge crossing on Route 20.

Although the two low bids are just $587 apart, price differences between them on some items are several times that amount. The Jalco price is 40% and $2,500 under second for bituminous concrete resurfacing. On the lump sum item for bridge crossing pipe installation, low bidder estimated $1,680 above second.

Work on this project started in August, must be complete by October 31.

Minimum wage rates include $3.20 per hour for hoisting engineers, power shovel operators and trenching machine operators; $2.10 for assistant operating engineers; $2.825 for tractor, bulldozer, and other power-driven equipment operators; $1.75 for common labor.

All materials are being furnished by the contractor.

Bidders include:

1C Jalco Corp., Norwood, Mass.	$76,975
2 Joseph Cucci, Newton Center, Mass.	77,562
10 Fantoni & Bitsoli Co., Natick, Mass.	88,690

Bids: 7-27-54 Item	Unit	Quantity	Unit Prices 1C	2
Asb cmt pipe, f&p 12"	lf	3,550	$4.93	$5.31
10"	lf	8,300	4.07	4.05
8"	lf	100	3.73	2.93
CIP cmt lined for hydrnts & cross conns, f&p	lf	100	4.75	2.81
Hydrnt w bracg & dr, f&p	ea	10	200.00	200.00
Gate vlv w box, f&i 12"	ea	3	185.65	181.00
10"	ea	5	146.75	145.00
8"	ea	2	98.25	98.00
6"	ea	10	69.80	72.00
Tap slv & vlv w vlv box f&i in exist line, 8"	ea	1	251.05	200.00
6"	ea	1	209.90	160.00
Auto air release vlv, compl, f&i	ea	2	100.00	50.00
Experimental trench	cy	20	3.00	0.50
Ledge or rock in trench	cy	1,500	6.00	5.00
Bit conc resurf f&p 4½"	sy	400	3.00	4.50
2½"	sy	2,500	1.50	2.50
Temp patch pavg f&p	sy	500	0.75	0.85
31 speci CIP fitg f&i	ls	1	1,363	1,224
Sel matl f&p in trench	cy	1,000	1.25	1.35
Watr P bri crossg, f&p	ls	1	3,000	1,320

Excavation prices land Idaho highway job

Nineteen bids opened in the Bureau of Reclamation office at Palisades, Idaho, ranged from 32% below the $401,856 engineer's estimate to 12% above. Low bidder Heald & Christler Inc., Billings, Montana, got the $274,808 highway contract, 4% and $12,340 under second-low bid.

This project entails earthwork and structures to relocate Idaho State Highway No. 29 (U. S. No. 26) in Bonneville County, southeastern Idaho. The new roadway will be 5.1 miles long, 30 feet wide shoulder to shoulder.

The successful contractor's price for common roadway excavation, 23¢ per cu yd, was 15% under second bidder's price—for a $26,680 difference. That the two low bids were separated by less than half this amount in the final tally is explained by second bidder's lower prices for nearly all items other than excavation.

Distance from the work site to railhead is 50 miles.

The contractor furnishes all materials except concrete right-of-way markers.

Prevailing wage rates give $2.60 per hour to skilled labor, $2.25 for semi-skilled, $1.90 to common labor.

Bidders include:

1C Heald & Christler, Inc., Billings, Mont.	$274,808
2 Eagle Constr. Co., Boise, Idaho	287,148
19 McNutt Brothers, Eugene, Ore.	450,405
EE Bureau of Reclamation, Palisades, Idaho	401,856

Bids: 3-18-54 Item	Unit	Quantity	Unit Prices 1C	2
Clear ROW	ac	70	$170.00	$150.00
Excavation: common, rd, to 333,500 cy	cy	333,500	0.23	0.27
ov 333,500 cy	cy	333,500	0.23	0.27
rock, rd, to 12,500 cy	cy	12,500	0.23	0.60
ov 12,500 cy	cy	12,500	0.23	0.60
uncl, for structures	cy	1,000	3.00	2.00
Watering	Mgal	17,000	0.50	0.50
Rolling embankments	roll hr	6,800	4.50	3.00
Overhaul	micy	39,500	0.18	0.25
Compacted backfill	cy	3,000	3.50	1.50
Riprap dumped	cy	1,500	4.00	4.00
hand-placed	cy	30	18.00	14.00
Grouted cobble gutter	sy	10	18.00	10.00
Culv P f&p cl A 18"	lf	230	6.00	4.00
B 24"	lf	980	7.00	5.25
CMP f&p 24" ϕ 14 ga	lf	1,060	7.00	5.25
12 ga	lf	220	9.00	6.50
10 ga	lf	330	11.00	9.60
72" ϕ 8 ga	lf	290	40.00	33.00
8" ϕ 16 ga, embk	lf	190	3.00	2.00
CM embank protectors, f&p	ea	5	35.00	20.00
Set conc ROW markers	ea	62	7.00	5.00
Cattle guard f& constr	ea	1	900.00	600.00
Wire fence, f& constr	lf	10,300	0.23	0.25

Dredging canal channel, La.

Dredging a 90-ft channel to elevation -9.0 msl for a length of 6.4 miles of an existing canal and involving 346,000 cu yd of channel excavation brought a low bid of $0.097 per cu yd and award of a $33,562 contract to Sam Carline, Inc., Berwick, La. Bids were opened March 29, by the Louisiana Department of Public Works, for work to start about May 1, on the East-West Canal, LaFourche Parish. The completion schedule is 240 calendar days. Bidders included:

1C Sam Carline, Inc., Berwick, La.	$0.097
2 C. F. Bean, Plaquemine, La.	0.108
6 Delta Equip. & Const. Co., Baton Rouge, La.	0.16

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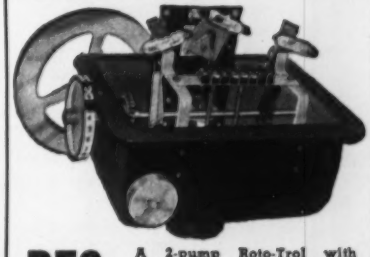

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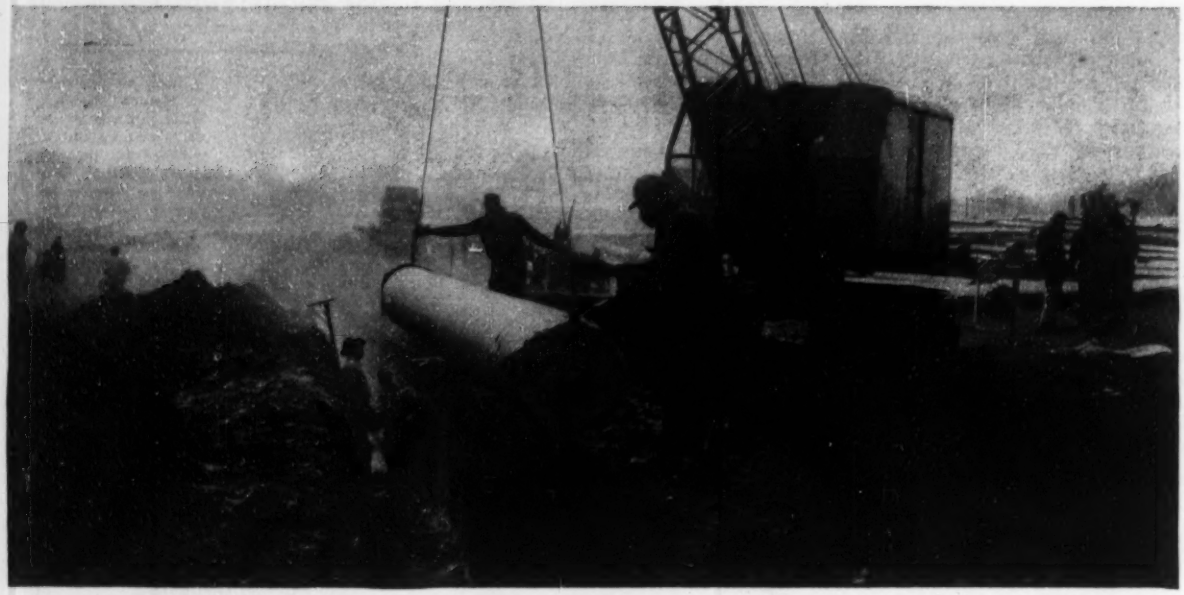

NOTHING secret about the movement toward underground gas storage. It's common knowledge that some of the largest gas companies have adopted this practical idea, for storing gas *underground* in National Seamless Steel Bottles is the safe way—the modern way.

Buried underground, National Seamless Bottles offer enormous possibilities to utility companies for future high pressure gas storage—for both emergency and peak loads. Buried bottles are safe from harm, unaffected by storms, high winds, or lightning. And they are not a hazard to or from aviation.

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Once installed in the ground, the bottles will not vibrate or settle as a surface installation will. And the gas pressure does not fluctuate as it would above ground, because underground temperatures are relatively stable the year around.

National Seamless Steel Bottles save on maintenance, too. Unlike above-ground installations, they need not be painted periodically, nor do they require constant inspection and protection against the elements. Moreover, any group of bottles can be taken off the line for inspection or repair at any time without interrupting the gas pressure of the other groups of bottles.

For the utmost in strength and dependability, National Seamless Steel Bottles are pierced from solid billets of the highest quality steel, leaving little doubt about uniform wall strength, and every bottle undergoes a severe hydrostatic test before it leaves the mill.

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS NATIONAL SEAMLESS STEEL BOTTLES

USS

UNITED STATES STEEL

A planner prophesies big-city transport trends

Austin Tobin's look at the next 25 years implies a great deal of upcoming highway, bridge, and tunnel work

The Port of New York Authority is a bi-state agency with considerable powers over transportation in the biggest of U. S. metropolitan areas. In the course of its work, it buys a lot of construction: bridges, tunnels, docks, airports, buildings, and many other things. That's one reason construction men should be interested in some predictions and opinions as to transportation in the New York area during the next 25 years made last week by PNYA's executive director, Austin J. Tobin. The other reason, of course, is that some of New York's problems are common to every other U. S. metropolitan region.

"The highways and tunnels and bridges we have built," Tobin told a conference of the Regional Plan Assn., "are utterly unable to meet the demands of our present, much less our future traffic. The terminal at La Guardia Airport, which was the world's most modern when it was opened only 15 years ago is utterly obsolete today. And only last April we tore up plans for new terminal buildings at New York International and began all over again when the airlines argued that the rapid strides of aviation made plans that were conceived in 1952 already obsolete by 1954."

Tobin then proceeded to make some bold predictions and offer some clear-cut opinions:

• Before 25 years, airlines will have entirely replaced railroads in the long-haul passenger field. Helicopters "will have made marked inroads" on railroad runs of less than 250 or 300 mi. This will reduce commuting time by as much as 80%.

• If competition of other ports is to be met and requirements of modern ships handled, the Manhattan, Brooklyn, and Staten Island water fronts "will have to be completely reconstructed." Tobin was thinking in this particular instance of the failure of New York City to modernize its piers and its refusal to allow PNYA to perform the job.

• Airports will have to be located where they can be reached by surface transport from the traffic areas they serve, not 50 mi or so out of town. Helicopters will not be able to transfer economically that number of people and their baggage in and out of midtown.

• "Land patterns have developed with the automobile" and cannot be served efficiently by public transportation. Rapid transit is not available and "probably will never be practicable" in new suburban areas "because of the diffused pattern of travel that cannot be channelized along a few high-density routes having the same destination."

• This is why capital spending of commuter railroads and subways over the next quarter-century will concentrate on replacement and modernization of equipment, and not on extension of trackage.

• "Where channelization of traffic movements develops, the infinitely greater flexibilities of the bus make it the mass transportation vehicle of the future. But even the bus will only be accepted by the suburbanite . . . where traffic clots comparable to those of a work day in Manhattan convince him that it's the lesser of two evils."

• It's unrealistic "to insist on mass transportation as an alternative for the private automible" in developing the metropolitan region of the future. "The rising curve of automobile usage and the decline in the use of public transportation is evident across the entire country. . . . Up to the point of traffic stagnation, as we have it in Manhattan today, the American prefers to drive directly from his own home to his destination and back again. And what is more, he can afford to do so."

• "For non-peak trips into Manhattan, as well as for the commuter in the expanding areas, what we must encourage is an increased use of huge parking lots on the periphery of the congested areas that will permit transfer at that point," to the rapid transit system.

• "One of the easiest prophecies is the highway map of the metropolitan region 25 years from now. Both in New York and New Jersey the plans for these future arterials are well in hand and their necessity is such as to make their progress rather certain. . . . In addition to the $875-million cost of our metropolitan arterial highways now under construction, it will take another two billion 1954 dollars to complete this 1980 metropolitan highway map."

MC&S prepares ammunition for new merger campaigns

Merritt-Chapman & Scott Corp., which has done a lot of diversifying since financier Louis E. Wolfson became its board chairman in 1951, is apparently going to keep right on spreading out.

At a special meeting last week, stockholders voted to increase authorized common stock capitalization from 3,000,000 to 6,000,000 shares. None of the shares just authorized is needed for acquisition of two companies that MC&S currently is planning to acquire through stock mergers. Wolfson himself noted that complete acquisition of Marion Power Shovel Co., Marion, Ohio, and a Canadian company, C. A. Pitts General Contractor, Ltd., would take about 532,000 new shares. That would boost outstanding MC&S stock to 2,229,000 shares.

• **Eyes open**—Wolfson said he had no definite plans for new mergers. "But," said he, "we always have our eyes open." Wolfson, who is currently engaged in a well-publicized battle to take over control of Montgomery Ward & Co. from Sewell Avery, also declared that "whatever other interests I may undertake, I shall continue to devote my attention, as now, to Merritt-Chapman & Scott and to the welfare of its stockholders."

He told stockholders that present prospects indicate a second-half rise in earnings, and then went on to review the company's growth since 1949. Among other things, Wolfson pointed out that net worth of MC&S had risen from $8.4 in 1949 to $41.6 million at the end of the first half of 1954. He also pointed out that, when adjusted for three stock dividends distributed since 1950, the $2.00 annual dividend rate now being paid is equal to $3.68 in terms of the $1.60 paid in 1949, up 130%.

(B&F continued on page 60)

$700 million of pipelines in sight for 1954-1955

Pipeline construction in the United States, now hovering at an annual outlay of three-quarters of a billion dollars, continues to increase yearly. One big reason is the replacement of existing pipelines with modernized systems.

Figures released last week by John E. Boice of the Committee for Pipeline Companies, Washington, D. C., a private information organization, showed 7,353 mi of oil pipelines completed in 1953 at a cost of $399,421,000. Crude oil pipelines accounted for 4,521 mi at a cost of $279,112,000; and products pipelines accounted for 2,832 mi at a cost of $120,129,000.

• **1954-1955 plans**—Pipeline construction planned for 1954-55 totals 13,247 mi at an estimated cost of $708,987,000. That includes 6,270 mi of crude oil pipelines costing an estimated $364,056,000 and 6,977 mi of products pipelines costing an estimated $344,931,000.

Of the construction planned for 1954-55, contracts for approximately 9,005 mi of pipelines, costing an estimated $464,558,000 have yet to be awarded.

Pipeline projects for 1954-1955

Owner	Location	Miles	Estimated Cost (in millions)
	Crude Oil Lines		
Western Pipe Line Co.	Ft. Laramine, Wyo. to Freeman, Mo.	628	$36.4
Ar-Me- Pipe Line Co.	Guernsey, Wyo. to Coolidge, Ariz.	790	30.0
Michi, Inc.	Highland, Ind. to Elsie and Alma, Mich.	222	6.4
N.N.C.W. Pipeline Co.	Clareton Field, Wyo. to Casper, Wyo.	108	3.5
Powder River Pipeline Co.	Williston Basin to Laurel and Billings, Mont.	436	18.3
Standard Pipe Line Co.	Glendive, Mont. to Guernsey, Wyo.	350	22.6
Standard Pipe Line Co.	Wink, Texas to Albuquerque, N. M.	310	17.5
Union Oil Co. (Calif.)	Torrey Canyon Field to Wilmington, Calif.	65	2.0
West Coast Pipeline Co.	Midland, Texas to Norwalk (Calif.)	1,030	111.5
	Products Pipelines		
Badger Pipe Line Co.	East Chicago, Ind. to Madison, Wis.	175	15.0
American Pipe Line Corp.	Beaumont, Texas to Newark, N.J.	1,910	170.0
Texas Eastern Transmission Corp.	Baytown, Texas to Moundsville, W. Va. (conversion from natural gas to products)	1,168	14.81
Ar-Mex Pipe Line Co.	Coolidge, Ariz. to Phoenix Ariz.	60	1.2
Bell Oil & Gas Co.	Ardmore, Okla. to Cushing, Okla.	140	3.2
Cal-Ore Pipeline Co.	Crescent City, Calif. to Medford, Ore.	103	2.0
El Paso Natural Gas Co.	Bloomfield, N.M. to Gallup, N.M. (LPG Line)	119	1.3
Goliad Corp.	Kittie Plant to Corpus Christi, Texas, (LPG Line)	117	2.3
International Pipeline Co.	Wrenshall, Minn to Minneapolis, Minn.	132	4.4
Malco Pipe Line Co.	Prewitt, N.M. to Albuquerque, N.M.	91	1.3
Malco Pipe Line Co.	Artesia, N.M. to Newman, N.M.	138	1.7
Moore, Stoner Co.	Glendive, Mont. to Minot, N.D.	175	2.6
Standard Oil Co. (Texas)	El Paso, Texas to Albuquerque, N.M.	250	4.0
Sunflower Pipe Line Co.	Kearny, Grant, & Haskell Counties, Kan. to Wichita, Kan.	265	3.5

(1) Probably only one of these two will be built.

Bonds pick up

Issues sell out quickly, easing market congestion

With no big-revenue-bond issues coming up in the immediate future, the bond market seems to be getting over its slight case of indigestion (ENR Sept. 30, p. 52).

Last week, on the municipal side of the market a $65-million Mississippi River bridge issue sold out fast. Investors were offered the bonds at a yield of 3.46%, and the market price soon climbed a point above the offering level. Contracts on the bridge will soon be awarded, and work is expected to start in January.

Some of the unsold housing bonds which underwriters still had on their shelves were bought up last week. The backlog of unsold municipal issues which dealers advertise for sale was cut by $25 million last week to $257 million. Admittedly, that is still a sizeable figure, but the municipal market is a big one with constant turnover.

On the corporate side of the bond market, investors were bidding eagerly for bonds that underwriters had held for weeks unsold. There were signs that big investors had decided not to wait any longer for lower yields, but were stepping in now.

• **Revenues like corporates**—The corporate bond market and the municipal bond market are usually considered separately. But the revenue bonds that have come out in such huge volume in the past couple of years and which may be expected in the future are very similar to corporates. That's because the big buyers of revenue bonds—life insurance companies and pension funds—are more or less indifferent to the tax-exemption feature of municipal bonds. So they require yields from revenue issues that are comparable with corporates.

• **Breathing space**—The municipal bond market will have a chance to catch its breath before the next big issue comes along. The next big issue scheduled—a $100-million offering by the Virginia Tunnel Revenue Authority—has been postponed from this

week to Oct. 27. Presumably, the borrower expects better conditions then.

Meanwhile, the Indiana Toll Road Commission has decided on Dec. 1 for the date of financing its north-south turnpike between Hammond and Indianapolis. A. J. Wedeking, executive director of the commission, said that it had been decided to cut out about 20 mi of the turnpike, in order to give the project greater earning power. That change is going to reduce the bond issue from $225 million to $178 million—a sizeable reduction.

It had been originally planned to connect the turnpike with Highway 40, but now the turnpike will run only as far as Highway 136. Wedeking said that traffic studies had shown this section would not have been self-supporting.

Venture capital group will study atom's uses

Development of the commercial uses of atomic power—with its incalculable effects on the construction industry—was brought a step closer last week. An imposing group has been formed to provide venture money for commercial development of what is already known about the atom.

Among others, the group includes: Robert W. Dowling, of New York, president of City Investing Co.; Harvey Firestone, Jr.; Roger Kyes, vice president of General Motors Corp. and former Deputy Secretary of Defense; representatives of Laurence Rockefeller, Vincent Astor, and the Mellon family; Gardner Cowles, publisher; and G. H. Walker, head of the New York investment banking house of G. H. Walker & Co.

To study investment possibilities, the group has retained Robert LeBaron, who resigned last summer as Deputy Secretary of Defense for atomic energy. In addition to other projects, LeBaron and his staff will look into the possibilities of building atomic power plants in parts of the world where conventional power plants are uneconomic.

Business briefs . . .

• **State and local bond proposals** approved by voters so far this year total $11,113 million, up 23% from the same 1953 period, reports The Bond Buyer.

• **Armco** Drainage & Metal Products, Inc., subsidiary of Armco Steel Corp., is expanding its production facilities for prefabricated steel buildings and building products.

"She's 26 years old... and **more** rugged than ever!

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says The Dolomite Products Co., Penfield, N. Y.

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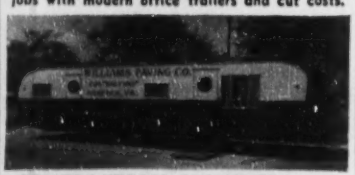

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Activity This Week

As reported to ENR (In millions of dollars)

† Six days
* Four-day week

Amount of contracts let

	This Week	Cumulative 41 wks 1954	Cumulative 41 wks 1953	% chge
Federal	$29.9	$980.6	$1,194.5	−18
State and municipal	87.7	3,896.6	3,937.0	−1
Total public	117.6	4,877.2	5,131.5	−5
Total private	141.8	6,403.3	6,817.5	−6
U. S. total	$259.4	$11,280.5	$11,949.0	−6

Contracts by type of work

Waterworks	$3.9	$188.9	$190.8	−1
Sewerage	11.2	296.7	346.0	−14
Bridges	9.0	403.7	531.9	−24
Highways	31.1	1,504.8	1,428.7	+5
Earthwork, waterways	17.8	240.8	303.4	−21
Buildings: Public, excl. hsg.	34.5	1,384.2	1,348.5	+3
Housg., public	3.2	187.9	327.6	−43
Housg., private	53.6	3,335.7	2,896.5	+15
Commercial	45.0	1,064.2	935.1	+14
Industrial	39.9	1,505.9	2,218.8	−32
Unclassified	10.2	1,167.7	1,421.7	−18
Total	$259.4	$11,280.5	$11,949.0	−6

NOTE: Minimum size projects included are: waterworks and waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

New capital for construction

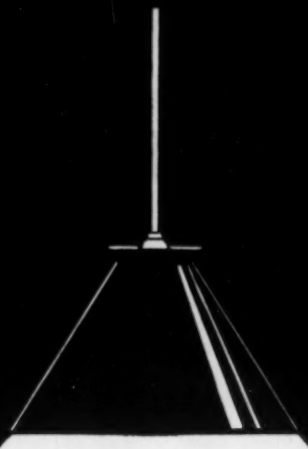
(millions of dollars)

	Week of Oct. 7 1954	Cumulative 40 Wks 1954	Cumulative 40 Wks % chge '53-'54
Corporate securities	$359.5	$2,581.5	−28
State and municipal:			
All except housing	81.1	4,175.8	+28
Housing	...	91.0	−61
Federal loans	1.6	93.7	+2
Federal aid	...	673.0	−13
Total non-federal	$442.2	$7,615.0	−4
Federal appropriations:			
In U. S.	...	$2,073.3	+32
Outside U. S.	...	33.2	+15
Total new capital	$442.2	$9,721.5	+2

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	10/7	642.00	308.61	134.58
	9/30†	641.89	308.56	134.56
Building cost	10/7	455.65	246.31	129.53
	9/30†	455.54	246.25	129.49
Volume	Sept.	503	204	145
	Aug.	525	213	152

† Official October index.



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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: October 26, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 28th day of OCTOBER 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Saratoga	R.C. 54-103	Various Highways (Tree Removal)	....	Removal of 158 Trees	$750 Plans $10	$13,000
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Madison	FAC 54-14	City of Oneida: North-South Art. Highway (No. Main St.) Proj. U-691(3)	0.64	Asp. Conc. Ty. 1A	$11,000 Plans $10	202,000
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.						
Erie	O.T. 54-5	New York State Thruway—Ontario Section—Subs. 9-10-11-12 & 13	7.14	6' Chain Link Fence	$7,500 Plans $10	140,000
Erie	FASS 54-16	Ridge Road C.R. 101 Proj. S-436(1)	0.19	Asp. Conc. Opt. Deck Beam Bridge 2 Spans Each 83'	$20,000 Plans $10	361,000
Niagara	FAC 54-10	City of Lockport: Genesee St.-Walnut St. Proj. U-709(4)	(0.32) (Hwy.) (0.30) (Acc.)	Asp. Conc. = 0.31 Mi Asp. Conc. Acc. = 0.26 Mi. Misc. Work = 0.05 Mi. Comp. I-Beam Br. 133.5'	$65,000 Plans $25	1,174,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland	R.C. 54-104	Haverstraw-West Haverstraw, S. H. 5389 Tompkins Cove-West Haverstraw, S. H. 8049	1.85	Asp. Conc. Opt. R. C. Closed Box Br. 25.4'	$13,500 Plans $10	249,000
Westchester	FANETC 54-2	New York State Thruway—New England Section—Sub. 2 (North Ave. Drain) Proj. FI-1068(2)	0.49	Drainage and Misc. Work	$28,000 Plans $10	512,000
Westchester	FANET 54-6 FANETC 54-5	New York State Thruway—New England Section—Subs. 1 and 2A (N. Y. City Line to Kings Highway) and Local and Access Rds. Proj. FI-1068(6)	(1.25) (Thy.) (1.26) (Acc.)	9" Cem. Conc. Pavt. 2 @ 37' Var. Wide = 1.25 Mi. Cem. Conc. Pavt. Acc. Rds. = 0.80 Mi. Asp. Conc. Opt. (Local Rds.) = 0.46 Mi. Hy. Sep. Comp. I-Beam 54.6' Hy. Sep. R.C. Frame 50' Hy. Sep. Plate Girder 128.4'	$175,000 Plans $100	3,163,000
Westchester	FANETC 54-7 NETC 54-8 NET 54-9	New York State Thruway—New England Section—Sub. 2 (Kings Highway to Chatsworth Ave.) and Local and Access Rds. Proj. FI-1068(7)	(2.83) (Thy.) (3.85) (Acc.)	9" Cem. Conc. Pavt. 2 @ 37' Wide = 2.83 Mi. Cem. Conc. Pavt. Acc. Rds. = 2.30 Mi. Asp. Conc. Opt. (Local & Acc. Rds.) = 1.55 Mi. I-Beam & Plate Girder Viaduct 1259.7' 4 Hy. Sep. Rigid-Frames 66', 40', 49' and 50' 4 Hy. Sep. I-Beams 131.9', 54', 291' & 148' 3 Hy. Sep. Plate Girders 124.9', 394', & 108.4' 1 Hy. Sep. R.C. Arch 24.7' 1 Hy. Sep. R.C. Slab 28' Repair Exist. Pony Truss	$740,000 Plans $100	14,252,000
DISTRICT No. 9, F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton, N. Y.						
Sullivan	R.C. 54-102	Narrowsburg-Callicoon, Pt. 3, S. H. 8449; Callicoon-Long Eddy, Pt. 2, S. H. 8494	0.32	Repair, Clean and Paint 2 Bridges	$1,700 Plans $10	31,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.						
Bronx	FANETC 54-3	New York State Thruway—New England Section—Contract 5B, (Eastchester Creek Bridge Superstruct.) Proj. UI-1068(4)	0.17	Superstructure 527' Span Bascule Piers & Operating Mach. & Elect. Equip.	$125,000 Plans $50	2,273,000
Bronx	FANETC 54-4	New York State Thruway—New England Section—Subd. 6 (Cont. No. 1) Proj. UI-1068(5)	2.95	Grad. Drainage & Misc. Work 1 Hy. Sep. I-Beam 168.8' 2 Ped. Overpass I-Beam 62.2' & 62.2' 1 Ped. Overpass Plate Girder 99.8' 2 Hy. Sep. Comp. I-Beams 73.4' & 88.3' 1 Hy. Sep. Plate Girder 106.8' 1 Hy. Sep. Conc. Arch 90.5'	$380,000 Plans $100	6,910,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: November 3, 1954

Indiana Toll Road Commission
309 W. Washington Street
Old Trails Building
Indianapolis, Indiana

NOTICE TO BIDDERS
CONTRACT C-10A

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 a.m., Central Standard Time, November 3, 1954 for the performance of the contract enumerated above.

The grading, drainage, structures and paving of approximately 0.525 miles in Construction Section C-10A of the Indiana East-West Toll Road beginning at a point about 1,386 feet west of Toll Road Centerline Station 1108+85.22 and extending eastwardly 2,772 feet on Fifteenth Avenue in the City of Gary and Lake County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	21,000 Cu. Yds.
Peat Excavation	45,000 Cu. Yds.
Borrow	57,000 Cu. Yds.
9" Reinforced Concrete Pavement	8,100 Sq. Yds.
8" Waterbound Macadam Base	7,500 Sq. Yds.
2" Bit. Coated Aggr. Surface	800 Tons
Culvert Pipes and Under Drains	600 Lin. Ft.
Steel Piling	2,000 Lin. Ft.
Concrete for Structures	1,400 Cu. Yds.
Reinforcing Steel	250,000 Lbs.
Fabricated Structural Steel	1,100,000 Lbs.

Copies of the Plans, Specifications and Proposal Forms for said Contract are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road	$5.00
Plans, Special Provisions and Proposal Forms, per set, per construction Section	$25.00
Informational Drawings	
Cross-Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 a.m., Central Standard Time, November 3, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of the above Contract, if any award be made, will be to the Bidder or Bidders whose Proposal is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger — Chairman
Charles W. Keating — Secretary-Treasurer

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4269) will be received at Bismarck, N. D., until November 16, 1954, for furnishing labor and materials for stringing conductors and overhead ground wires, Jamestown-Fargo 230-kv transmission line, Transmission division, North Dakota, Missouri-Souris District, Missouri River Basin Project. Location: between Jamestown and Fargo, N. D. Principal items are: 82.95 mi. line, furnishing and stringing three 954,000-cir. mil ACSR conductors; 82.95 mi. line, furnishing and stringing two ½-inch galvanized-steel overhead ground wires; furnishing and attaching 5,477 vibration dampers; and other work. Completion time 510 days. For particulars, address Bureau of Reclamation, Bismarck, N. D.; or Building 53, Denver Federal Center, Denver, Colo. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: October 22, 1954

Specification No. PA-5-11018
St. Lawrence Contract No. 5

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
FOR
MISCELLANEOUS CLEARING—
LONG SAULT ISLAND
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the clearing in the vicinity of Cut "F" on Long Sault Island near Massena, St. Lawrence County, New York, until 10:30 A.M. Eastern Standard Time on the 22nd day of October, 1954 at the Authority's Office, 270 Broadway, Room 1207 A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The only item of work is:
Estimated: 80 acres Clearing, Cut "F" on Long Sault Island.

Plans, specifications and Proposal Forms for the work are on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 250 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, after October 11, 1954 upon application and prepayment of a fee of Five ($5.00) dollars, no part of which will be refunded.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of Power Authority of the State of New York for the Sum of $750.00.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: November 3, 1954

Indiana Toll Road Commission
309 W. Washington Street
Old Trails Building
Indianapolis, Indiana

NOTICE TO BIDDERS
Contract C-17
Contract C-18
Contract C-19
Contract C-17 and C-18
Contract C-18 and C-19
Contract C-17, C-18 and C-19

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 a.m., Central Standard Time, November 3, 1954 for the performance of each of the contracts enumerated above.

CONTRACT NO. C-17

The grading, drainage, structures, and paving of approximately 4.3 miles in Construction Section C-17 of the Indiana East-West Toll Road beginning at a point about 973 feet west of the Jackson Center Road at Toll Road Centerline Station 1967+40 in Porter County and extending eastwardly to a point about 2,430 feet east of County Line Road at Toll Road Centerline Station 2196+00 in La Porte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	980,000 Cu. Yds.
Borrow	50,000 Cu. Yds.
10" Reinforced Concrete Pavement	123,000 Sq. Yds.
Culvert Pipes and Underdrains	13,000 Lin. Ft.
Cast-in-Place Concrete Piling	7,400 Lin. Ft.
Concrete for Structures	2,800 Cu. Yds.
Reinforcing Steel	560,000 Lbs.
Fabricated Structural Steel	880,000 Lbs.

CONTRACT NO. C-18

The grading, drainage, structures, and paving of approximately 4.4 miles in Construction Section C-18 of the Indiana East-West Toll Road beginning at a point about 2,430 feet east of County Line Road at Toll Road Centerline Station 2196+00 in La Porte County and extending eastwardly to a point about 1,494 feet east of Jacob Wozniak Road at Toll Road Centerline Station 2428+00 in La Porte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	1,400,000 Cu. Yds.
10" Reinforced Concrete Pavement	145,000 Sq. Yds.
Culvert Pipes and Underdrains	27,500 Lin. Ft.
Cast-in-Place Concrete Piling	20,000 Lin. Ft.
Concrete for Structures	5,600 Cu. Yds.
Reinforcing Steel	770,000 Lbs.
Fabricated Structural Steel	1,800,000 Lbs.

CONTRACT NO. C-19

The grading, drainage, structures, and paving of approximately 4.7 miles in Construction Section C-19 of the Indiana East-West Toll Road beginning at a point about 1,494 feet east of Jacob Wozniak Road at Toll Road Centerline Station 2428+00 in La Porte County, Indiana, and extending eastwardly to a point about 1,517 feet northeasterly of County Road at Toll Road Centerline Station 2674+50 in La Porte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	765,000 Cu. Yds.
Borrow	315,000 Cu. Yds.
10" Reinforced Concrete Pavement	130,200 Sq. Yds.
Culvert Pipes and Underdrains	22,600 Lin. Ft.
Cast-in-Place Concrete Piling	8,800 Lin. Ft.
Concrete for Structures	2,000 Cu. Yds.
Reinforcing Steel	420,000 Lbs.
Fabricated Structural Steel	820,000 Lbs.

The work covered by Contracts C-17 and C-18; C-18 and C-19; and C-17, C-18 and C-19, which cover combinations of Construction Sections C-17, C-18 and C-19 is the Construction as above described for the individual Construction Sections, taken together.

Copies of the Plans, Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indiana. These documents may be purchased from said Chief Engineer for the folowing sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road	$5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross-Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Section, the Construction Section thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 a.m., Central Standard Time, November 3, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger — Chairman
Charles W. Keating — Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: October 21, 1954

Power Authority of the State of New York

FOR
CONSTRUCTION OF
ACCESS RAILROAD & HIGHWAYS
AND
IMPROVEMENT OF EXISTING ROADS
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK

SPECIFICATION NO. PA-5-11003
ST. LAWRENCE CONTRACT NO. 4

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Access Railroad and Highway and Improvement of Existing Roads near Massena, St. Lawrence County, New York, until 10:30 a.m. Eastern Standard Time on the 21st day of October, 1954 at the Authority's Office, 270 Broadway, Room 1207 A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are:

Schedule No. 1, Railroad and Highway Estimated:

365,000 cu. yds. Excavation, Railroad & Highway
355,000 cu. yds. Embankment, Railroad & Highway
9,600 lin. ft. Highway Guard Rail
1,910 lin. ft. Reinforced Concrete Culvert Pipe (various sizes)
100 cu. yds. Dry Rip-Rap
33,000 cu. yds. Bank Run Gravel
10,000 cu. yds. Bituminous Macadam
7,000 tons Asphalt Concrete, Type 3A
Schedule No. 2, Improvement of Existing Roads
3.2 miles, Clearing and Grading of Existing Roads
16,000 cu. yds. Bank Run Gravel
6,000 cu. yds. Bituminous Macadam
780 lin. ft. Reinforced Concrete Culvert Pipe (Various sizes)
5,000 cu. yds. Selected Borrow
2,700 lin. ft. Highway Guard Rail
20,000 cu. yds. Excavation
19,000 cu. yds. Embankment
Schedule No. 3, Track Work for Main Lines
8,900 lin. ft., Furnishing and Laying Track
5,000 each Furnishing and Placing Cross Ties
4,700 cu. yds., Furnishing and Placing Ballast
Schedule No. 4, Classification Yard Track Work
23,600 lin. ft., Furnishing and Laying Track
13,000 each Furnishing and Placing Cross Ties
12,500 cu. yds., Furnishing and Placing Ballast

Plans, specifications and Proposal Forms for the work are on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Forty ($40.00) dollars per set, no part of which will be refunded.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of the Power Authority of the State of New York for the Sum of $80,000.00.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: October 28, 1954

Grade Crossing Elimination Project

Sealed Proposals for the elimination of the grade crossing at Adams or Franklin Park Road, North Brunswick township, Middlesex County, Adams, N. J., will be received by The Pennsylvania Railroad Company at the Office of Chief Engineer-Eastern Region, Room 450, Pennsylvania Station, 30th Street, Philadelphia, Pa., until 10:00 A. M., Eastern Standard Time, on October 28, 1954, at which time and place they will be publicly opened and read.

The elimination project is being constructed under an Order of the Board of Public Utility Commissioners of New Jersey.

The major items of work include the following approximate quantities:

78,000 C. Y. Embankment
975 C. Y. Foundation Excavation
630 C. Y. Roadway & Ditch Excavation
9,510 S. Y. Top Soiling
4,800 S. Y. Macadam Base Course—9"
4,675 S. Y. Macadam Base Course—4"
1,100 Tons Bituminous Concrete Surface Course
303 C. Y. Class "B" Concrete in structure
2,016 C. Y. Class "C" Concrete in structure
210,000 Lbs. Reinforcement Steel
390,000 Lbs. Structural Steel
115 L. F. 30" Diameter Reinforced Concrete Culvert Pipe
1,285 L. F. V.C. Pipe (24", 18" and 12")
500 L. F. C.I. Pipe 12"
7 Ea. Manholes
570 S. Y. Bituminous Concrete Sidewalk
2,600 L. F. Guard Fence
4,150 L. F. Concrete Curbs
970 Gal. Bituminous Dampproofing

The Contract Documents, including Plans and Specifications, may be examined and obtained at the Office of the Assistant Chief Engineer-Eastern Region, Room 351, Pennsylvania Station, New York City, upon deposit of Ten Dollars per set, which will be refunded upon return of the Documents in good condition within twenty days after date on which bids are received.

Each proposal must be accompanied by a certified check of the Bidder payable to the Pennsylvania Railroad Company, in an amount not less than five per centum of the Total Price stated in the Proposal, subject to the conditions provided in the Instructions to Bidders.

Proposals must be submitted in a sealed envelope marked "Adams, N. J. Grade Crossing."

The right is reserved to reject any or all bids.

The Pennsylvania Railroad Company
C. J. Henry, Chief Engineer-Eastern Region
Philadelphia, Pa.

Bids: October 25, 1954

Standpipe Foundation, Valve Vault and Appurtenances

DES MOINES, IOWA

Sealed bids will be received by the Board of Water Works Trustees, Dale L. Maffitt, Secretary and General Manager, at their office 1003 Locust Street, Des Moines 7, Iowa, up to 10:00 A. M., Monday October 25, 1954, for the construction of a standpipe foundation at S. E. Ninth St. near Park Ave.

Work consists of constructing, (1) a pile foundation of 256 piles approximately 35 ft. long upon which is built an 18 inch reinforced concrete slab 62 ft. in diameter, and (2) a reinforced concrete valve vault and appurtenances.

Plans and specifications may be obtained from the office of the Des Moines Water Works, 1003 Locust Street, Des Moines 7, Iowa, and at the office of the Engineers, Alvord, Burdick & Howson, 20 North Wacker Drive, Chicago 6, Illinois.

Plan Deposit—$10.00
Certified Check—10%

U. S. Government

Sealed bids for furnishing and installing four new generators at Gatun Hydroelectric station, Panama Canal Zone, will be received in the office of the Engineering and Construction Director, Balboa Heights, Canal Zone until 10:00 AM, November 17, 1954 at which time they will be publicly opened. Plans and specifications are available at the office of Procurement Officer, Panama Canal Company, 21 West Street, New York 6, New York. Deposit of $40.00 required.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4267) will be received at Lindsay, Calif., until November 2, 1954, for furnishing labor and materials for earthwork and structures, Lateral 24.2, Sta. 981+43 to 114+72, Madera Distribution System, Central Valley Project, Calif. Location: Madera County, Calif. Principal items are: 100,000 c.y. excavation for lateral, structures, and from borrow; 45,000 c.y. placing compacted earth lining; 160 c.y. concrete; 520 l.f. precast concrete pipe; and other work. Completion time 100 days. For particulars, address Bureau of Reclamation, Lindsay, Calif.; or Building 53, Denver Federal Center, Denver, Colo. W. A. Dexheimer, Commissioner.

Bids: October 26, 1954

DEPARTMENT OF PUBLIC WORKS
KANSAS CITY, MISSOURI

Sealed proposals will be received by the Director of Public Works at his office on the 20th floor of the City Hall, Kansas City, Missouri, until

Two O'Clock P.M.
Tuesday, October 26, 1954

to furnish all labor, equipment and materials, and to perform all work necessary for the construction of the following City improvement, to-wit:

TO CONSTRUCT THREE CAISSON PIERS TO BE SUNK BY DREDGING AND PNEUMATIC WORK, FOUNDED ON BEDROCK SHALE OR OTHER SUITABLE MATERIAL, DESIGNATED PIERS NOS. 1, 2, AND 3, OF THE MISSOURI RIVER BRIDGE AT BROADWAY,

as shown on the plans, as specified herein, and as directed by the Director of Public Works.

At the time and place above mentioned, bidding will be closed and those proposals received will be publicly opened and read aloud.

Payment for this improvement is to be made in CASH, out of funds provided for this purpose.

A proposal from any contractor in default with the City on any previous contract will not be considered.

No proposal shall in any manner be conditioned and the submission of such a conditioned proposal shall cause its rejection. A proposal will not be considered unless CASH or Certified Check in an amount equal to or in excess of five (5) per cent of the amount bid has been previously deposited with the Director of Finance and his certificate therefor accompanies the bid. Copies of plans and specifications are on file and may be examined at the office of the Department of Public Works, 19th Floor City Hall, Kansas City, Missouri, and at the office of Howard, Needles, Tammen & Bergendoff, Consulting Engineers, 1805 Grand Avenue, Kansas City, Mo. Prospective bidders will be supplied with two sets of plans and two copies of the specifications upon payment of $10.00 to Howard, Needles, Tammen & Bergendoff. Prospective bidders who have purchased bidding plans and specifications may secure extra prints of plans at fifty cents per sheet and extra copies of specifications for $2.00 per copy. By virtue of statutory authority, a preference will be given to materials, products, supplies and all other articles produced, manufactured, made or grown within the State of Missouri.

The Contract will be awarded to the lowest and best bidder, but the right is reserved to reject any and all proposals.

Reed McKinley
Director of Public Works
Of Kansas City, Missouri

Bids: October 26, 1954

Construction of Intake Pipe

Sealed bids for the construction of 18 inch waterworks intake pipe in Lake Ontario will be received by the Town Board of the Town of Williamson, acting as Commissioners for the Williamson Water District, at the Williamson Town Hall, Ridge Road, Williamson, New York, until four o'clock, P.M., E.S.T. on the 26th day of October, 1954.

Bidding forms can be obtained and plans and specifications examined at the office of the Town Clerk at the Town Hall in Williamson, New York, or the office of William S. Lozier Company, Engineers, 10 Gibbs Street, Rochester, New York.

Copies of plans and specifications for Contract "B" may be obtained upon the payment of five dollars (5.00) for each set, which will not be refunded.

The work consists of the construction of approximately 2,250 feet of 18 inch waterworks intake pipe with screens, valve and anchors, and 12 inch pipe connection to existing intake with valves.

LESLIE LAWRENCE
TOWN CLERK

U. S. Government

St. Paul District, Corps of Engineers, U. S. Army 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids will be received at this Office until 2:00 PM., C.S.T., 21 October 1954, and then publicly opened for Channel Improvement on Rush River, North Dakota, Near Fargo, North Dakota.

OFFICIAL PROPOSALS

Bids: November 9, 1954

New Jersey Turnpike Authority

ADVERTISEMENT FOR PROPOSALS
CONTRACT NO. N-6

Proposals are invited for Contract No. N-6 which involves the construction of forty-seven piers and four abutments for the viaducts for Ramp E, Ramps F and H, and Ramp G, and a portion of the Newark Bay-Hudson County Extension on viaduct, a retaining wall, and other incidental work, all at the Newark Airport Interchange of the New Jersey Turnpike, in the City of Newark, Essex County, in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Open Foundation Excavation	19,500 Cu. Yds.
Concrete	15,300 Cu. Yds.
Reinforcement Steel	1,210,000 Lbs.
Treated Timber Piles	41,000 Lin. Ft.
Untreated Timber Piles	97,000 Lin. Ft.
Steel Piles	13,200 Lin. Ft.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'Clock Eastern Standard Time on the morning of November 9, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after October 14, 1954, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

Oct. 14, 1954

Bids: October 28, 1954

New Jersey Turnpike Authority

ADVERTISEMENT FOR PROPOSALS
CONTRACT NO. N-46

Proposals are invited for Contract No. N-46 which, in connection with the Newark Bay-Hudson County Extension of the New Jersey Turnpike, involves the construction of six (6) buildings, including moving three small structures and moving materials and equipment from existing buildings to new or existing buildings; construction of a septic tank; renovation of the interior electrical system of two (2) existing buildings; and other incidental work on U. S. Government property at Caven Point Terminal, Jersey City, New Jersey.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock Eastern Standard Time on the morning of October 28, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after October 14, 1954, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

Oct. 14, 1954

Bids: November 2, 1954

Aerial Lift Bridge Over the Duluth Ship Canal

CITY OF DULUTH, MINNESOTA
NOTICE TO BIDDERS

1. Sealed bids for the reconstruction of the lift span floor of the Aerial Lift Bridge over the Duluth Ship Canal will be received by the Commissioner of Public Utilities of the City of Duluth, Minnesota at his office, in the City Hall, in the City of Duluth, Minnesota until 11:00 a.m., C.S.T. November 2, 1954, at which time the bids will be publicly opened and read.

2. The project for which bids are required includes removal of asphalt plank, timber flooring and street car rails and miscellaneous materials from the lift span roadway and construction of a new open gratin, floor thereon. The work will also include concrete floor fill, asphalt sidewalk resurfacing and re-adjustment of counterweight balance. The construction will require the following approximate quantities of materials: 9,300 sq. ft. of open steel floor grating, 13 cu. yds. of concrete floor fill and 430 sq. yd. of 1" thick asphaltic concrete surfacing.

3. Each bid shall be accompanied by a cashier's or certified check in an amount not less than five per cent of the total amount of the proposal. Bids and bid checks may be held for a period of not more than thirty days after the date of opening; thereafter, bid checks will be returned to bidders who are not awarded contracts. Bid checks will be returned to the successful bidder upon execution of the contract form and submission of acceptable performance bond.

4. All work except concrete floor fill and sidewalk resurfacing is to be completed and the materials installed in not more than 120 calendar days after receipt of notice to proceed. Delayed completion must be compensated by liquidated damages. A performance bond will be required.

5. Copies of plans and specifications are on file and may be examined at the office of the Division of Public Utilities, City Hall, Duluth, Minnesota and at the office of Howard, Needles, Tammen & Bergendoff, Consulting Engineers, 1805 Grand Avenue, Kansas City, Missouri. Prospective bidders will be supplied two sets of plans and two copies of specifications upon application to Howard, Needles, Tammen & Bergendoff, Consulting Engineers, 1805 Grand Avenue, Kansas City, Missouri and payment of $5.00 therefor.

6. The City of Duluth reserves the right to reject any or all bids and to make award without technicalities as to procedure.

City of Duluth, Minnesota
Division of Public Utilities
Ernest A. Bodin, Commissioner

Bids: November 10, 1954

Delaware River Port Authority Administration Building Camden, New Jersey

GLOUCESTER APPROACHES
TRUSS SPANS SUPERSTRUCTURE,
GLOUCESTER ANCHORAGE TO
NEWTON CREEK
CONTRACT NO. G-2

Sealed bids will be received for TRUSS SPANS SUPERSTRUCTURE GLOUCESTER ANCHORAGE TO NEWTON CREEK, for new bridge between Packer Avenue, Philadelphia, Pennsylvania, and Gloucester, New Jersey, known as Contract No. G-2, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey, until 2:30 P. M. (Eastern Standard Time), November 10, 1954, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $275,000, payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO,
Executive Director

Bids: October 26, 1954

State of New Jersey State Highway Department Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

HOOPER AVENUE

Construction of Hooper Avenue from State Highway Route #37 to Silverton in Dover Township, Ocean County, Federal Aid Secondary Project No. S-110(2). Length 3.89 miles. The principal items of construction are:

Estimated:
29,800 cu. yds. Roadway Excavation
91,500 sq. yds. 8" Gravel Surface
2,361 lin. ft. Drainage
160,400 gals. Bituminous Material
17,000 sq. yds. Fertilizing, Seeding & Mulching

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, October 26, 1954, at TEN o'clock (10:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statment and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 20 Robbins Street, Toms River, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of Ten Dollars ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 739, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.80 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.80 a line an insertion.

INFORMATION:
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office W. 42nd St., N. Y. 36 for November 4th issue closing October 18th

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District Construction Manager

Large national engineering and construction company with headquarters in the midwest seeking graduate engineer with several years varied experience in the mechanical and building phases of construction to serve as construction manager of midwestern district. Position involves the supervision and direction of project superintendents on both building and mechanical type projects, including analysis of costs and methods relating to each project. There will be considerable travel. Experience as a district construction supervisor or project manager on several large projects is desired.

Persons qualified should submit a complete resume stating experience, education and salary requirements. All replies treated confidential. Interviews arranged for qualified applicants.

P-4072, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

BRIDGE ENGINEERS AND SPECIFICATION WRITERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:
Detailers—2 years structural steel or reinforced concrete detailing.
Designers—5 years responsible work on structural steel and concrete including work on long span bridges.
Squad Leaders—3 years responsible charge of squad on structural steel detailing.
Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

ARCHITECTURAL ENGINEER

We are rapidly expanding our MILCOR line of engineering metal products for the building industry and have a management level opening for an experienced man to conduct preliminary investigations of potential new products, develop drafting room techniques, and perform engineering liaison between the sales and manufacturing departments. Experience in light gauge metal fabrication highly desirable.

INLAND STEEL PRODUCTS CO.
Box 393 Milwaukee 1, Wisconsin

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

JR. CIVIL Engineers, Instrumentmen. Map Draftsmen needed for expanding Highway Program in Nevada. State Personnel Department, Carson City, Nev.

EXPERIENCED ESTIMATOR, Graduate Engineer preferred, capable of preparing estimates, pricing, purchasing, subcontract negotiation and job management. Permanent position with well established and progressive general contractor located in Northwestern Ohio specializing in industrial and commercial buildings, public works and bridges. Send complete history including education, past experience, references and salary expected. P-3958, Engineering News-Record.

DRAFTSMAN WANTED—Experienced in detailing miscellaneous and/or structural steel by Bushnell Steel Company, P. O. Box 2579, Jacksonville, Florida. Reply giving brief resume of experience, education, availability, and salary expected.

STRUCTURAL ENGINEER Wanted—Experienced in designing and estimating structural steel, by Bushnell Steel Company, P. O. Box 2579, Jacksonville, Florida. Reply giving brief resume of experience, education, availability, and salary expected.

CIVIL OR structural engineer; experienced in structural design for all types building construction. State age, qualifications and salary requirements. Progressive firm located in Eastern Pennsylvania. P-4059, Engineering News-Record.

NORTHERN NEW Jersey concern desires young, graduate engineer with some heavy construction experience to do field surveying and estimating. Send complete resume of experience and salary desired to P-4055, Engineering News-Record.

WANTED SOIL Mechanics, concrete and asphalt inspectors and technicians. Recent graduates with soil mechanics and concrete laboratory training may apply. Openings in field and laboratory for construction contracts of turnpikes and large engineering projects in the middlewest. Send resume to: Testing Service Corporation, 710 North Brookfield Street, South Bend 28, Indiana.

BRIDGE DESIGNERS and draftsmen wanted. State education, experience, and salary desired in reply. T. B. Gunter, Jr., Bridge Engineer, State Highway and Public Works Commission, Releigh, North Carolina.

SUPERINTENDENT FOR Gen. contractor, in Phila. Must have proven record as superintendent on commercial and industrial construction. State experience, salary desired & references. P-4180, Engineering News-Record.

HIGHWAY DESIGN Engineers — Expansion program. Openings for designers, squad leaders, draftsmen, tracers. Large expressway project located in vicinity of Baltimore, Maryland. Furnish full information regarding education, experience, age and references. Replies confidential. Associated Consulting Engineers, 1606 Kelly Avenue, Baltimore 9, Maryland.

ENGINEERING GEOLOGIST having a minimum of 15 years experience in field and laboratory work in soils, foundation studies and design. Work would be in connection with construction of structures, highways and embankments. Applicant should be registered P.E. and be capable of assuming charge of the soils department. Excellent opportunity with long established engineering firm in Midwest. P-4115, Engineering News-Record.

WANT STRUCTURAL detailer, experience required. Engineering background desirable. Eugene F. Wilsey Company.—Sioux City, Iowa.

WANTED
EXPERIENCED SALESMAN
For Heavy Construction Equipment
In Northern New Jersey
Must know Territory

SW-3880, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

2 Office Engineers—experienced setting grades for streets, sanitary sewers, storm drainage and site grading for subdivisions.
1 Map Draftsman—ink and pencil, neat and accurate.
1 Party Chief—experienced in subdivision layout and land survey.
Positions permanent—Contra Costa County, Calif.

P-4075, Engineering News Record
68 Post St. San Francisco 4, Calif.

CIVIL ENGINEERS

Junior positions in California's huge highway program. High level professional experience with excellent promotional opportunities offered to recent college graduates in civil engineering. $376 to start with raise after six months. Positions open at this level only. Write Section E, State Personnel Board, 1015 L Street, Sacramento 14, Calif.

POSITIONS VACANT

GUNITE—ORGANIZE operation for established New York contractor. Must know estimating and take-off. Excellent opportunity for right man, who will have opportunity to become executive of aggressive and growing organization. Share of gunite profits in addition to attractive salary. P-4123, Engineering News-Record.

LEADING MANUFACTURER of construction machinery offers excellent opportunity for special sales representatives with experience in rock drills or explosives contacting major contractors on nationwide basis. Age to 50. Submit full details of experience, qualification and salary requirement to P-4222, Engineering News-Record.

LARGE EASTERN contracting company engaged in heavy construction desires man to fill position as superintendent of equipment maintenance. Position permanent for right man. Include age, family data, education experience, references and salary expected in application letter. P-4221, Engineering News-Record.

CIVIL ENGINEER—competent and experienced in the preparation of detailed specifications and contract documents for water works and sewerage projects, mechanical and electrical work. Location—Central Ohio. Consulting engineers office. Permanent position intended. State experience, when available and salary requirements. P-4220, Engineering News-Record.

EXPERIENCED ENGINEER as construction superintendent to take complete charge of large sewer job. Permanent connection to right man. Salary plus bonus. Give complete resume of back-ground and experience. P-4225, Engineering News-Record.

EXECUTIVE SECRETARY for Construction Management Trade Association located in Northwestern Pennsylvania. Annual budget $12,000. Reply P-4208, Engineering News-Record.

HEAVY CONSTRUCTION Superintendent for all phases from concrete through steel erection to heavy machinery installation. Must have solid experience in all details of construction as well as administrative ability for overall control of large size projects. Write full details. M. K. Smith—Dist. Const. Mgr. Room 1315 Henry Oliver Bldg. Pittsburgh 22, Pa.

(Continued on opposite page)

UTILITIES ENGINEER

Foreign Service

B.S. degree in mechanical or chemical engineering plus minimum five years' experience in operational and maintenance phases of steam electric power plant.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 84

ARABIAN AMERICAN OIL CO.
505 Park Avenue New York 22, N. Y.

WATER POLLUTION CONTROL ENGINEERS

California state government has immediate openings at Santa Rosa, Indio and Bishop. Salary range $6,060-$7,356. Applicants must have engineering degree and California professional engineers license, plus three years experience related to treatment and disposal of sewage and industrial wastes, including one year in supervisory capacity making public or government contacts. Interviews and civil service examination in California only. Write now to Recruitment Section, State Personnel Board, 1015 L Street, Sacramento 14, California.

SOUTH AMERICAN POSITIONS

MILL METALLURGIST for large copper concentrator, to work directly under Asst. Superintendent and be in full charge of all testing and research.

GRADUATE MECHANICAL ENGINEER with several years experience in actual supervision of large shops comprising Machine Shops, Plate & Welding Shops, Iron, Steel and Brass Foundries.

Large Copper Company, Chile, South America, 3-year contract. Transportation both ways and salary while traveling paid by Company. Good opportunities. In reply give complete details.

P-4231, Engineering News-Record
330 W. 42 St. New York 36, N. Y.

CONTROLLER

Young, aggressive Southern firm operating in the South, Southeast, Southwest, West and Midwest desires services of a controller with construction experience. Only persons of high calibre with executive ability need apply. Reply fully giving age, education, experience, when available and salary desired.

P-4168, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED
Chief Soils Engineer
2 Jr. Soils Engineers

Location North Central Penna. Send complete resume, date available and salary desired in first letter.

P-4137, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CONSTRUCTION SUPT.
For General Contractor

Must be familiar with concrete construction, brickwork, etc. and capable of coordinating subcontractors work. State experience, when available and salary requirements.

P-4223, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

MECHANICAL ENGINEER

Midwest Consulting Office of forty-years standing in Municipal and Industrial field has fine opening for experienced designer of heating, ventilating, air conditioning, plumbing (and electrical). Fine town, fine clientele. Permanent for right man. State salary requirement.

P-4230, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT
(Continued from opposite page)

IRRIGATION ENGINEER with agricultural, hydraulic and construction experience to design and supervise installation small irrigation systems South and Southeast. Permanent position with rapidly expanding firm. Excellent opportunity for ambitious young man. Submit resume, age, education, experience, list of references, salary requirements, availability. Box P-4226, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEERS — New York City and Rochester, New York territories open with well established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-3855, Engineering News-Record.

WANTED EXPERIENCED Construction Men with knowledge of rock drilling equipment to be trained as Sales Representatives and to work in the Eastern United States. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Previous sales experience is necessary. Please give complete resume of experience, qualifications, salary requirements, and availability. RW-3957, Engineering News-Record.

POSITIONS WANTED

CONST. ENGR.—20 yrs experience on all types of Construction—Airbases—Canals—Dams—Hospitals—Concrete Bldgs—Wood frame bldgs—office and field work—Masters Degree in Civil—Prefer foreign work—Just off a completed airbase contract—43 yrs old—Available stateside Nov. 5th. Write Box PW-3443, Engineering News-Record.

OFFICE MANAGER familiar all phases construction contracting business. Many years experience large projects Branch Offices Latin America. Speaks, reads, writes Spanish. Available immediately. PW-3893, Engineering News-Record.

REGISTERED C.E. 25 years experience. Roads, bridges, sewers, public works, etc. Design, construction, administration, specification writing. Desires office position. PW-3986, Engineering News-Record.

CONSTRUCTION EXECUTIVE, long New York experience buildings and heavy construction, available for new connection as Project Manager on large operation or as Contractor's executive, where scope will permit full use of ability. Inquiries solicited from contractors requiring top man, qualified to handle all phases, bid to completion. New York area preferred. PW-3661, Engineering News-Record.

CONSTRUCTION SALES Executive, 20 years experience New York commercial and industrial construction, available for new connection. C.E. Grad., Reg. Prof. Engr. Presently employed as sales manager by New York City grm of engineers and contractors. Inquiries solicited from engineering and construction firms requiring top man to increase sales volume. New York area preferred. PW-4046, Engineering News-Record.

ESTIMATOR, CHIEF Engineer for heavy construction only. Executive, with broad experience in both field and office on all types of heavy construction, and with proven ability to supervise estimating and engineering departments, invites replies from progressive heavy construction contractors. After twenty years with well established company, desires change. PW-4092, Engineering News-Record.

GENERAL SUPERINTENDENT all forms grouting and subaqueous work, along with soil stabilization and structure restoration. Can assume full job responsibility. 15 years with present company but desire to make a change. Prefer a small fast-growing concern in southern or midwestern locality. No boozer, married. Nominal salary to start. PW-4096, Engineering News-Record.

CHIEF PROJECT ENGINEER

To supervise and coordinate engineering staff of over 80 men on expressway and turnpike design program. Permanent position with well established consulting firm in Middle Atlantic States for man with 20 years of experience in highway engineering at least 10 in responsible charge. Submit resume, salary requirements and availability. Replies will be kept confidential and promptly acknowledged.

P-4244, Engineering News-Record
330 West 42nd St., New York 36, N. Y.

Don't forget the
BOX NUMBER

When answering the classified advertisements in this magazine, don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

POSITIONS WANTED

SANITARY ENGINEER, age 57, in excellent health, available after December first. Registered P.E. in eight states. Thirty two years successful experience in all phases of water and sewage projects, including investigations, reports, design, construction and operation. Can work with and supervise men efficiently. PW-4091, Engineering News-Record.

ENGINEER, 31 BSCE 4 years field supervision experience, building and heavy construction. PW-3892, Engineering News-Record.

ADMINISTRATIVE ENGINEERING Position. Professionally established civil engineer with thirty years design, construction, and teaching experience, principally in bridges and structures; author of several books. Desire position with responsibility with consulting firm. Desire change for ethical reasons. PW-4129, Engineering News-Record.

CIVIL ENGINEER—28, BSCE, Registered PE-5 years structural design, over two years airfield construction and design. Desire position with consultant organization or contractor. PW-4131, Engineering News-Record.

ADMINISTRATIVE ENGINEER, P.E., Multi state registration. Water supply hydro electric, industrial plants. Structural, hydraulic, mechanical problems. Consulting and industrial experience. Salary over $10,000. Immediate availability. PW-4156, Engineering News-Record.

ENGINEER SUPERINTENDENT, Young graduate C.E. Registered P.E. 7 years experience in heavy construction, currently employed by a small utilities contractor, desires a position with a larger concern. PW-4145, Engineering News-Record.

B.C.E. 30, varied experience, preferably Westchester or lower Connecticut. PW-4164, Engineering News-Record.

CONSTRUCTION ESTIMATOR—Office Engineer. Graduate, 14 years experience. Can handle job from bid to completion. Excellent record. L. Z. Stotts, 531 E. Front St. Statesville, N. Y.

DESIRE RESPONSIBILITY of supervision on heavy construction. Experience in all phases on dams, floodwalls, highways and airdromes. Still young. Reply PW-4174, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT & estimator twenty years experience all classes of building const. eastern states preferred. PW-4215, Engineering News-Record.

GEN. SUPT. 30 yrs. heavy construction experience. Industrial plants, bridges, dams, sewer treatment plants, pumping stations, sewer & water systems, marine construction, excavation, concrete structures, etc. Qualified to take full responsibility of projects of any type, any size. Good background, cost conscious. Know men & equipment. Available immediately any location. PW-4216, Engineering News-Record.

ENGINEERING EXECUTIVE available: Graduate with broad experience in administration, design, fabrication, and sales of mechanical and structural products desires position in sound progressive company, managing, promoting development and sales, providing talent and new spirit where interest lags. Now employed, but desires to exert energy to better advantage. PW-4217, Engineering News-Record.

(Continued on following page)

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POSITIONS WANTED
(Continued from preceding page)

FOREMAN, EXPERIENCED earth moving equipment, clearing and general construction. Relocate anywhere. Age 38, 2 yrs. college. Want responsibility leading to advancement. PW-4207, Engineering News-Record.

ENGINEER (BRITISH), highly qualified, pioneer in the application of aluminum, especially to building and structural engineering, seeks position where his unique experience may be fully utilized. PW-4239, Engineering News-Record.

DESIGNER DRAFTSMAN, Englishman, 12 yrs. experience Great Britain consulting engineers, structural, steel plant background. PW-4196, Engineering News-Record.

SUPERINTENDENT-ESTIMATOR. Heavy construction. Graduate C.E., 20 years broad experience. Available for permanent or long job in Great Lakes area. PW-4190, Engineering News-Record.

SELLING OPPORTUNITIES WANTED

DELAWARE VALLEY Representative contacting general and mechanical contractors on anchors, concrete inserts, core drills seeks one volume repeat item. RA-4206, Engineering News-Record.

CAN YOUR construction equipment sales force use 8 years sales experience and 15 years heavy construction experience as top supervisor. Age 42. Reply SA-4219, Engineering News-Record.

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Executive Engineer Qualified Journeyman several trades later N.Y. Lic. Prof. Engr. with staff, prepared to design temporary structures, completely train your staff to dovetail and coordinate field, office, purchases and deliveries. Reduction in unit costs guaranteed. 75% of our work executed in the field. Fee, percentage of savings or combination acceptable. Principals only. Confidential. SS-4192, Engineering News-Record.

BUSINESS OPPORTUNITIES

Wanted to buy: Engineering corporation licensed to do business in New York State. BO-4132, Engineering News-Record.

Attention: Architects—engineers—and contractors. Engineering materials testing laboratory engaged approximately thirty years on major construction projects from East Coast to West Coast is interested in contacting engineering and construction companies working on large scale Domestic or Foreign projects, for the purpose of furnishing specialized engineering services. Would be interested in negotiated contracts or on a joint venture basis. Large staff of highly trained engineers, excellent references and strong financial position. BO-4162, Engineering News-Record.

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NEW JOY DRILL SAVES OVER 13½¢ A CU. YD. ON NEW YORK THRUWAY JOB

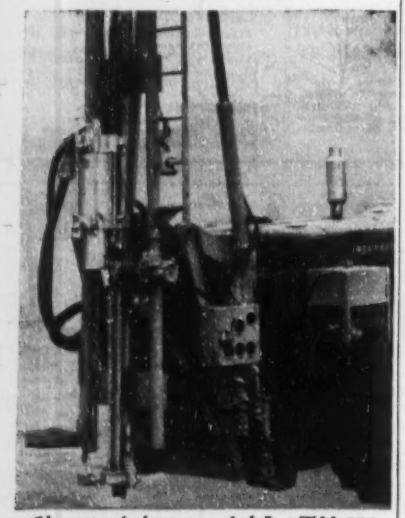
Contractor Pulls Drilling Costs 'Way Down With Joy Challenger Hammer Drill

On a section of the New York Thruway job, a large contractor compared drilling costs when using a new Joy Challenger Drill and 4" wagon drills.

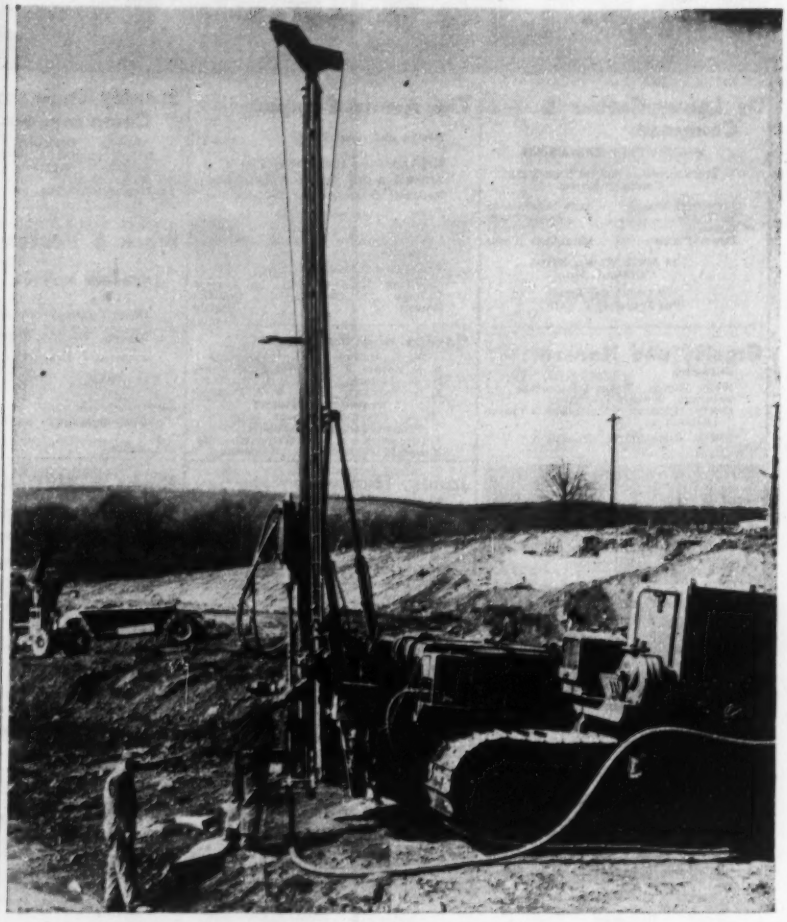
He drilled 20 to 24 ft. holes in hard limestone, allowing 10% hole loss to break to grade. Results (at right) indicated total saving with the Joy Challenger of 13-7/10¢ a cubic yard!

The revolutionary Challenger is self-propelled, very mobile. Each of three models is equipped with a Joy TM-500 Hammer Drill—largest ever built. Hole size is to 4½" dia., 50' deep.

Full details in free Bulletin 87-U. Write to *Joy Manufacturing Company, Oliver Bldg., Pittsburgh 22, Pa. In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*



Closeup of the powerful Joy TM-500 Hammer Drill as used on all three models of the Joy Challenger.



The revolutionary, new Joy Challenger Drill at work on the New York Thruway. This amazing drill reduced contractor's drilling costs 13-7/10¢ a cubic yard!

OPERATING FIGURES REVEAL SAVING:

ITEM	JOY CHALLENGER	4" WAGON DRILLS
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Fuel & lube oil per yard	.10	.14
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Saving in drilling cost (.322—.235)	**.087**	—
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Combination switch, key holder aids drill safety

A newly designed chuck key holder and switch for portable and bench drills offers added safety to operators. With the device, it is impossible to start the drill unless the handle of the key is inserted in the 3x1⅝x⅞ in switch box.

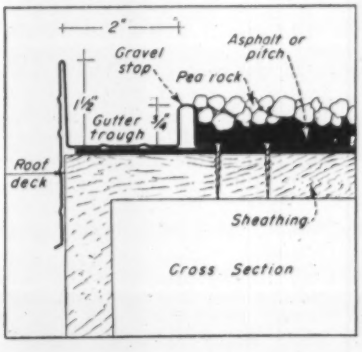
The result is that changing drills is safer and flying chuck keys—this usually happens when they are left in the chuck inadvertently—are avoided. It is said further that the switch saves time since the key is always near at hand—reducing the chances of loss. The switch is said to be Underwriters Laboratories approved. List price is $3.95 for portable models, $4.49 for stationary types. The Tricop Co., Inc., 308 W. Center St., Akron 2, Ohio.

Roof gutter has built-in gravel stop

A roof gutter has been designed to combine the advantages of both gravel stop and gutter for flat or underpitched roofs. Made of galvanized sheet steel or copper, the G-S—gravel stop—gutter provides a ¾-in. high gravel stop and a 1½x2-in. water channel.

Spillways, inside and outside corner sections, and end sections are also provided.

According to the manufacturer, standard 10-ft lengths are easily handled in the usual manner and one component roofer can readily install the gutter in the same time and with the same ease as placing a gravel stop. All sections are bedded in roofing mastic with a 2-in. overlap. Grooved driving blocks are provided for forcing the sections into a mechanical bond, but joints may be soldered if specified. Agar Mfg. Co., 390 N.E. 71st St., Miami, Fla.



Link-Belt revamps ¾-yd excavator

The LS-68, a light ¾-yd shovel-crane, has been designed to take the place of the LS-52, which has been in the field since 1952. The new model is said to offer a number of advanced features including Speed-O-Matic hydraulic controls. With this hydraulic control, operator fatigue is reportedly lessened since the long-throw manual levers are replaced by conveniently located short levers that can be manipulated with wrist action alone.

Further, the new model has a wider and heavier lower frame—11 ft overall length, 9 ft 2 in. wide with 24-in. shoes and 9 ft 8 in. wide with 30-in. shoes. Ground bearing area with the wider shoes is 47 sq ft, and this can be increased to 63 sq ft through the use of 36-in. shoes on a long-wide frame that is also available.

As a standard shovel the unit weighs 35,300 lb. It is said to be convertible to all standard front-end attachments with minimum conversion time and no major changes in main machinery. Link-Belt Speeder Corp., 1201 Sixth St., S.W., Cedar Rapids, Iowa.

Crawler-mounted ditcher cuts costs

A crawler-mounted service utility and foundation ditcher, the Gar Wood Buckeye model 403, is a small ladder-type unit designed for easy transportation from job to job. Designed for digging trenches for all types of service lines—water, gas, sewer, electric and telephone cables—and for building foundations, the capacity of the ditcher is 5 ft deep for 8, 10 and 12-in. widths of cut and 4 ft deep for 14 and 16-in. width of cut.

Crawler mounted for greater stability and flotation, the ditcher also has a low ground bearing pressure of 7.5 psi to prevent damage to lawns or walkways.

The combination speeds of the main and traction transmissions provide 8 digging speeds forward, from 1.71 to 16.28 fpm. The ditcher is said to dig a clean, straight-sided trench with square corners that require no hand forming.

Unit construction throughout reportedly makes the 403 exceptionally easy to convert for different digging specifications and easy to service. According to the manufacturer, all units are easily accessible and removable for conversion or maintenance without disturbing other components.

Buckets are bolted onto the bucket chain, and can be removed and replaced with different size buckets to change ditch width without replacing the whole chain line. Side rooters on the buckets are designed to insure a

(Continued on page 80)

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free cutting bucket line at all times, and the buckets are equipped with quick-change rooter bits to save time when replacement is required.

The 403's dirt discharge chute is self adjusting to automatically maintain the optimum angle for operation. Lowering or raising the boom for different depths of cut increases or decreases the angle of discharge onto the conveyor belt.

A live boom, independently controlled by a hydraulic cylinder, provides control for raising, lowering or holding the excavator boom. Dual drive on the head shaft by two chains from the bucket line differential is said to provide an even drive without side-cocking boom action. This reportedly minimizes stress on the boom and allows digging a straighter ditch since there is no tendency for the machine to edge off course.

The crumber shoe is adjustable to the ditch bottom and is hinged at the center so that it can be folded back to allow digging flush with buildings, foundations or ditches at right angles. The conveyor belt is reversible for discharge to either side of the machine, and independent conveyor speeds provide the proper rate of discharge for any digging speed.

Other features of the new Buckeye are split sprockets on head and tail shaft to make servicing easy, anti-frictions bearings on drives, sprockets and axles. Controls are banked at the fingertips of the operator. A grill-work platform under the operator's seat lets dirt fall through to the ground to provide a safe footing. Power is supplied for the machine by a gasoline engine developing 51 hp at 1,600 rpm.

In field tests on housing projects, the Buckeye 403 is said to have excavated foundation trenches 3 ft deep, 10 in. wide and 125 ft in perimeter in as little as 30 min. The contractor poured concrete into the trench as soon as it was excavated. CUSTOMER SERVICE DEPT., GAR WOOD IND., WAYNE, MICH.

Willys offers industrial "Jeep" engine power units

Following close on the heels of the introduction of industrial models of the military jeep engine, Willys Motors now offers completely operatable power packages based on the four engine models made available.

The power units include radiator, gas tank, air cleaner, complete electrical equipment and governor. The enclosure is a heavy gauge steel housing and the unit is mounted on reinforced skids.

Any of the new industrial engines can be assembled into the power unit. The Model L-4, a 4-cyl L-head type is designed for the lower power range and develops 47.5 bhp at 2,400 rpm and 59 bhp at 4,000 rpm. In the 4 cyl class also is the Model F-4, F-head engine, that develops 51 bhp at 2,400 and 70 at 4,000.

In the 6-cyl class, Model L-6 furnishes 56 bhp at 2,400 and 75.5 at 4,000; the F-6 affords 60 and 90 bhp at 2,400 and 4,200 rpm, respectively. It is pointed out that the torque curve of both F-head engines is practically constant at all speeds—an important feature where extra lugging power is needed.

A heavy-duty, hot climate, 11-qt radiator and heavy-duty oil bath air cleaner are supplied with each power unit. Many different transmission

adaptations are available including SAE flywheel housings, automotive clutch housing and transmission, power take-off units, etc. The instrument panel includes a key ignition starter switch, choke and throttle, ammeter and oil pressure safety switch gauges.

When fully enclosed, completely fueled and with power take-off the L-4 equipped power unit weighs 892 lb, the F-4 912, the L-6 929 and the F-6 equipped power unit is heaviest at 954 lb. INDUSTRIAL ENGINE DEPT., WILLYS MOTORS, INC., 1115 N. COVE BLVD., TOLEDO, OHIO.

Lightweight air-powered saw can be operated under water

The air-powered Portocut saw weighs 46 lb and is said to be properly balanced for easy working at any angle. The 3¼-hp cyl radial piston air motor reportedly develops positive and uniform torque at all speeds and motor racing is not required to secure power.

The cutter bar has a replaceable wearing strip and carries a spring loaded ball bearing mounted roller to reduce friction and wear and automatically apply power chain tension. The design of the two-strand alloy steel chain results in removal of less kerf, only $\frac{5}{16}$ in. The saw can be used for under water cutting. VULCAN IRON WORKS CO., 1423 STOUT, DENVER, COLO.

Winch-hoist redesigned to extend applications

The Lug-All weighs only 9 lb, yet equipped with a new and more rugged main frame to extend its range of applications. The ratchet teeth are now protected from rough surfaces by the new frame, an advantage when working alongside steel wire or walls.

The Lug-All weighs only 9 lbs, yet it is said to handle up to 1½ tons. It is equipped with a reversible safety handle that will bend when extreme overloads are applied. According to the manufacturer, loads can be backed off easily and safely due to an interlocking pawl arrangement. It has stainless steel springs, permanently oiled bearings and a 133-strand flexible preformed aircraft cable, that winds on the drum and out of the operator's way.

Among its uses are: pulling diesel engine cylinder heads, aligning wooden forms for concrete, raising scaffold beams, stretching steel mat floors, removing tractor transmissions, etc. THE LUG-ALL CO., 331 E. LANCASTER AVE., WYNNEWOOD, PA.

(*New Products continued on page 82*)

Powered by a two-drum hoist mounted on a tractor stationed on a highway rise, this Sauerman Crescent Scraper is doing a "first-rate" job of cleaning a drainage channel.

For similar operation, such as cleaning under culverts, removing silt from storm sewers or working in places where head room is too limited for other machines, the Crescent-tractor combination gives you the same versatile efficiency at low investment cost.

The Crescent, working between an anchorage and the hoist, will deposit excavated material anywhere along the span simply by reversing the forward pull. Through an opening no larger than its own width, the Crescent can be started through an underpass. It digs equally well on firm ground, boggy material or under water.

Write for Field Report 209 describing the use of Crescent Scrapers with tractors. This illustrated report tells how to use a scraper with your tractor and gives you cost figures on representative jobs. For similar information on the use of Crescent Scrapers with boom machines, request Field Report 219 and Catalog J.

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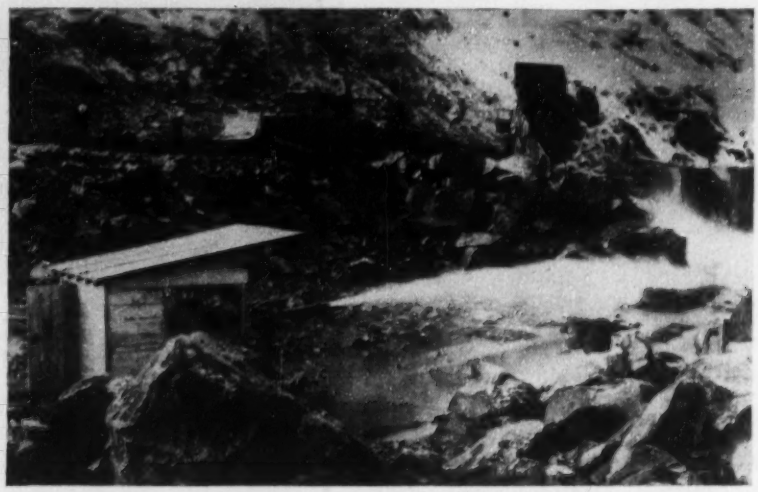


Hydraulic gun speeds dam construction

The Intelli-Giant, an improved hydraulic mining gun is said to reduce excavating costs and labor. The gun removes overburden, ploughs a slurry, and washes and packs earth-fill in dam construction. Three are now being used by Guy F. Atkinson Co., San Francisco, in a rock and earth-fill dam under construction at Cherry Valley, Calif.

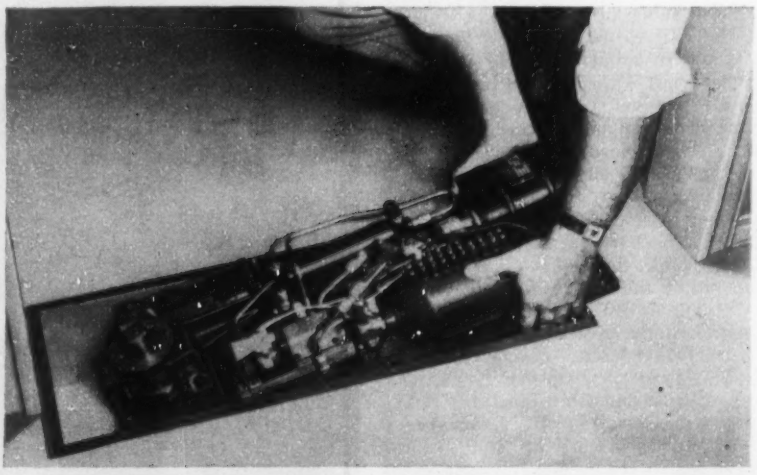
A simplified assembly has a swivel joint feature which eliminates gaskets. The company claims that this full-flow design feature allows maximum operating pressure at nozzle tips and reduces turbulence reached at high operating pressures in other types of hydraulic mining guns. Touch controls, said to increase safety and reduce operator fatigue, can be set at fast or slow; the gun can also be operated by remote control.

The barrel has a 320 deg horizontal arc and a wide vertical angle. Weight is 952 lb. THE CHIKSAN CO., 330 N. POMONA AVE., BREA, CALIF.

Packaged door opener easily installed

The entire mechanism of the Supermatic electro-hydraulic automatic door operator is a package 29″ long x 11″ wide x 6½″ deep that is installed under the door's threshold and activated by a treadle or electric eye. For use in commercial buildings and institutions, the door operator eliminates compressors, piping, and the running of hydraulic lines.

The unit is watertight and reportedly will function efficiently at all tem-



peratures from minus 40 degrees to plus 200 degrees F.

The treadle, which electrically activates the operator, lies flat and is divided by the door. A safety feature prevents the door from opening or closing if a person is standing on any section of the treadle over which the door normally passes.

The control box of the system houses an adjustable timer to hold the door open for the desired length of time, and a switch for "automatic", "manual" or "full open" position. This box can be mounted anywhere and wired to the operator through a conduit. In case of power failure, the door can be opened manually and will close itself. NATIONAL PNEUMATIC CO., INC., DEPT. SU., 125 AMORY ST., BOSTON 19, MASS.

Steel couplings aid in stringing large pipes

New flexible steel couplings for large diameter pipe lines (24" to 96") are said to be easy to install, provide a tight seal and yet are flexible enough to allow for expansion, contraction and misalignment. Special expansion jointing reportedly is not required on a pipe line when these couplings are used on all joints. Welding is eliminated and only a wrench is required to couple a string of pipe.

The couplings consist of a formed middle ring, two rubber gaskets, two follower-flange rings and heavy bolts. Two types of gaskets are available Lastite Rubber and Lastite Neoprene. Middle rings are made in various thicknesses and lengths. R. H. BAKER & CO., 2070 E. SLAUSON AVE., HUNTINGTON PARK, CALIF.

"Linen-finish" acoustical tiles easily repainted

A new "linen-finish" is now supplied on drilled wood fiber acoustical tiles. Designated Gold Bond Acoustifibre, the finish was designed to provide acoustical ceilings that are free from variations in light reflection.

The new washable white finishes have a finely knurled texture that gives the appearance of woven fabric. There are said to be no projecting fibers or paint blobs and may be repainted without endangering the ceilings acoustical efficiency. The tiles reportedly have noise reduction coefficients of .65, .70 and .75.

The new material is available in standard 12x12-in., 12x24-in. and 24x24-in. sizes, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ in. thick. NATIONAL GYPSUM CO., 325 DELAWARE AVE., BUFFALO 2, N. Y.

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EDITORIALS

Adding to local traffic troubles

New Jersey's toll turnpike has not provided the local traffic relief that was anticipated when it was opened three years ago, Governor Robert B. Meyner told the recent Public Works Congress in Atlantic City. Highways parallel to the turnpike now carry traffic loads closely approaching the congestion of pre-turnpike days.

The significance of this situation extends far beyond New Jersey. It reaches into most of the states now building or planning to build toll highways and even to areas where long freeways have been built. These modern superhighways do speed the movement of the long-distance travelers through a congested region and do take such travelers off the old local highways. But they also generate a lot of new local movements over and above the normal growth of traffic. Practically all of this traffic makes some part of each trip over the older highways in getting to and from the turnpike or freeways. These movements, added to the normal traffic growth, have produced congestion on New Jersey's highways much sooner than anyone anticipated. Presumably the same thing will happen in other regions.

What does it mean? It means that the money spent on toll turnpikes through thickly populated areas makes little or no contribution to the cost of solving the local traffic problems in those areas. Sometimes a toll highway may even add to the cost of local traffic improvements by taking over the best available route for a new highway through a congested region. All of which is another reminder that toll roads are not a cure-all.

Fewer jurisdictional disputes

Far more than any other, the construction industry should take note of, approve, and do what it can to help in the American Federation of Labor's new plans for handling its own jurisdictional disputes.

Construction—with cooperation from both sides of the labor-management fence—has already led the way in this direction, with its now well established National Joint Board for Settlement of Jurisdictional Disputes. The reasons for the establishment of that board are these: No other U. S. industry presents such a complex, interdependent labor picture that can be so easily distorted by a squabble over who should do what on the job. And few industries are so sensitive—in the assignment of work to labor—to new technology and materials.

But there are large gaps in the authority and scope of the Joint Board that the AFL's new plan may help to fill. Many of the AFL union are not now within the authority of the Joint Boards. And some of these (the Teamsters for a very particular example) can do great damage to construction labor and management in jurisdictional battles that do not concern construction at all. Demonstration of that fact needs only the citing of a teamster strike (over an intra-union fight for political power) that threw nearly 200,000 construction tradesmen out of work for more than six weeks in New York City.

What AFL President Meany proposed (and, significantly, Teamster President Beck accepted) is a system of arbitration of jurisdictional disputes within the AFL's structure—proceeding upward to the top officers if lower echelons can't handle the matter satisfactorily. A somewhat similar system has been quite successful here and there for many years—notably within the Building Trades Council in New York City. But it can only be really successful if it has the wholehearted support and cooperation of the employers. They can help by seeing to it that disputes are referred promptly to the agency set up to settle them and that the individual unions are put on notice that the employer expects this orderly handling.

And most importantly, the employers can help by handling their work assignments promptly in accord with the decisions reached.

More pavement research

Prospects for an early start on the National Road Test program of the American Association of State Highway Officials have brightened greatly with the announcement that 30 states have agreed to make cash contributions to the project (ENR Sept. 23, p. 23), which is expected to cost around $4,000,000. Present indications are that the AASHO will be able to authorize a start on building the test pavements at its annual meeting in Seattle early in November.

Both rigid and flexible type pavements of widely varied designs are to be subjected to accelerated load testing under actual field conditions, thus giving the test program greater scope than the flexible type test project of the Western Association of State Highway Officials, which was completed early this year in Idaho. The test sections are to be built in Illinois on a relocation of U. S. Route 6, about 100 miles southwest of Chicago, where soil and climatic conditions are similar to conditions found in much of the Midwest.

To be of greatest usefulness, actual testing work on this project should get under way at the earliest possible date. If not, the results will not be known in time to be of help in designing highways to be built under the greatly expanded highway building program proposed by President Eisenhower. One way to assure an early start would be for the Bureau of Public Roads to advance the money needed for the preliminary grading work just as soon as the AASHO is able to authorize a start. In that way grading could be started this fall. The BPR is believed to be enough interested in the undertaking to be receptive to such a proposal.

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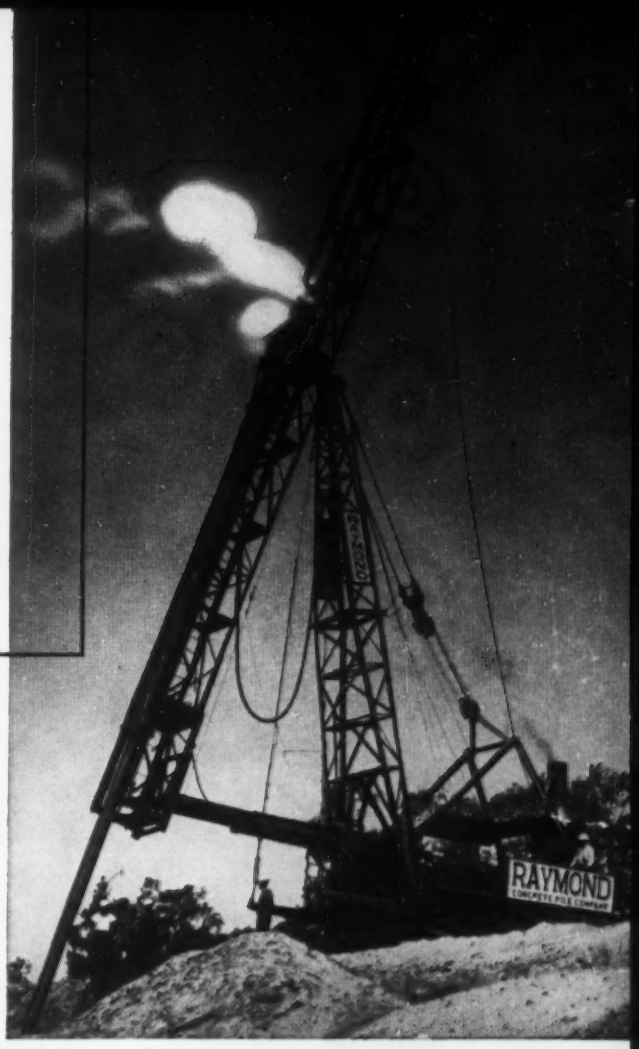

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